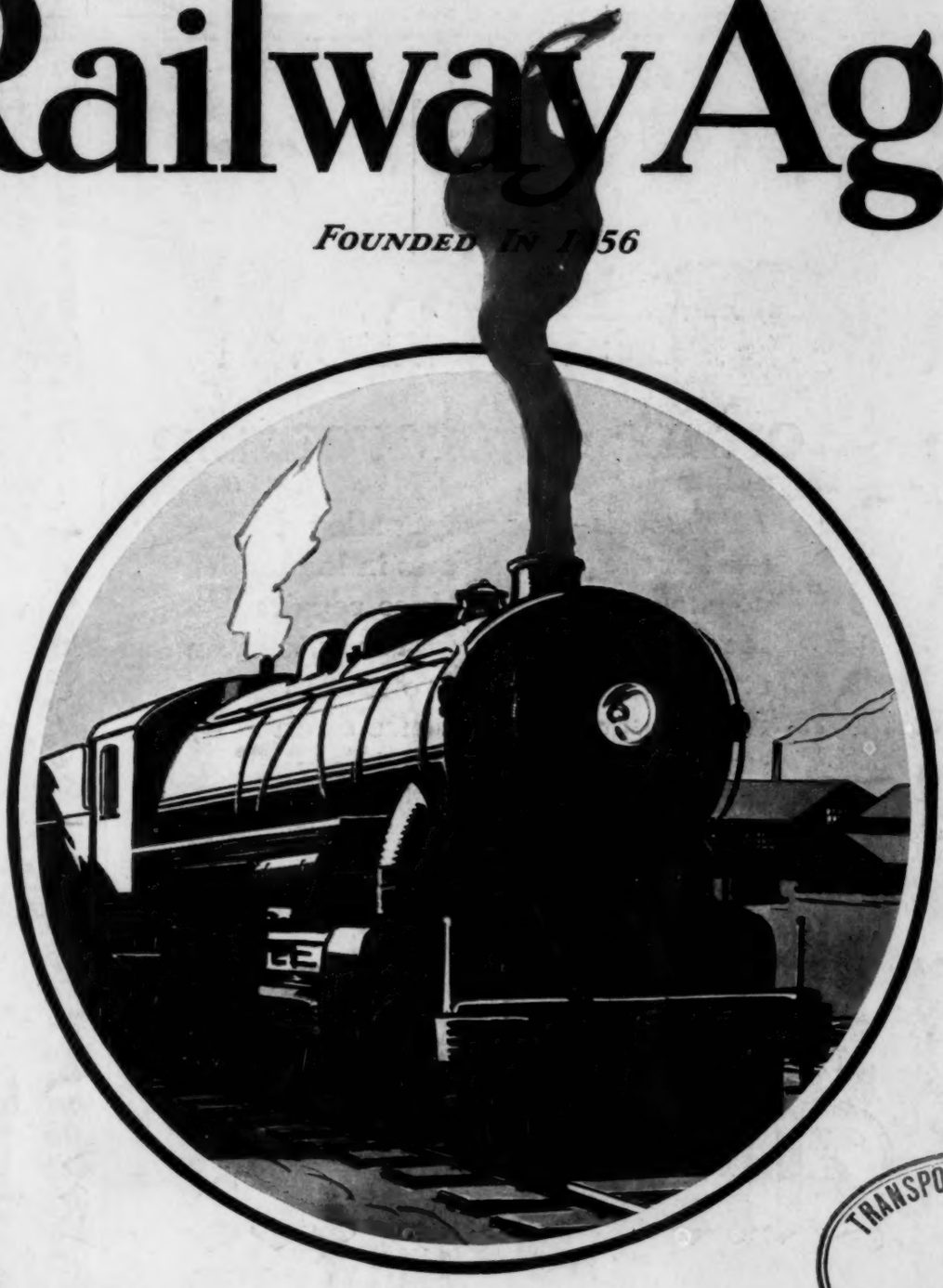
AUGUST 3, 1929

Railway Age

FOUNDED IN 1856



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In This Issue:

Effect of O'Fallon Decision on Valuation and Rate-Making
Old Spans Serve as Falsework for New Spans
Important Factors in Obtaining Fuel Economy
Kansas Wheat Movement Unprecedented

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Published weekly by Simmons-Boardman Publishing Company, 34 North Crystal Street, East Stroudsburg, Pa. Entered as second class matter, March 9, 1928, at the Post Office at East Stroudsburg, Pa., under the act of March 3, 1879.
Address communications to 30 Church St., New York City.

Published every Saturday by the Simmons-Boardman Publishing Company, 34 North Crystal Street, East Stroudsburg, Pa., with executive offices at 30 Church Street, New York.

All communications should be addressed to the New York Office, 30 Church Street

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The Railway Age is a member of the Associated Business Papers (A. B. P.) and of the Audit Bureau of Circulations (A. B. C.)

Subscriptions including 52 regular weekly issues and special daily editions published from time to time in New York, or in places other than New York, payable in advance and postage free; United States, Mexico and Canada, $6.00. Foreign countries, not including daily editions $8.00.

Subscriptions for the fourth issue each month only (published in two sections, the second of which is the Motor Transport Section) payable in advance and postage free; United States, Mexico and Canada, $1.00; foreign countries, $2.00. Single copies, 25 cents each.

Railway Age

With which are incorporated the Railway Review, the Railroad Gazette and the Railway Age-Gazette. Name Registered U. S. Patent Office.

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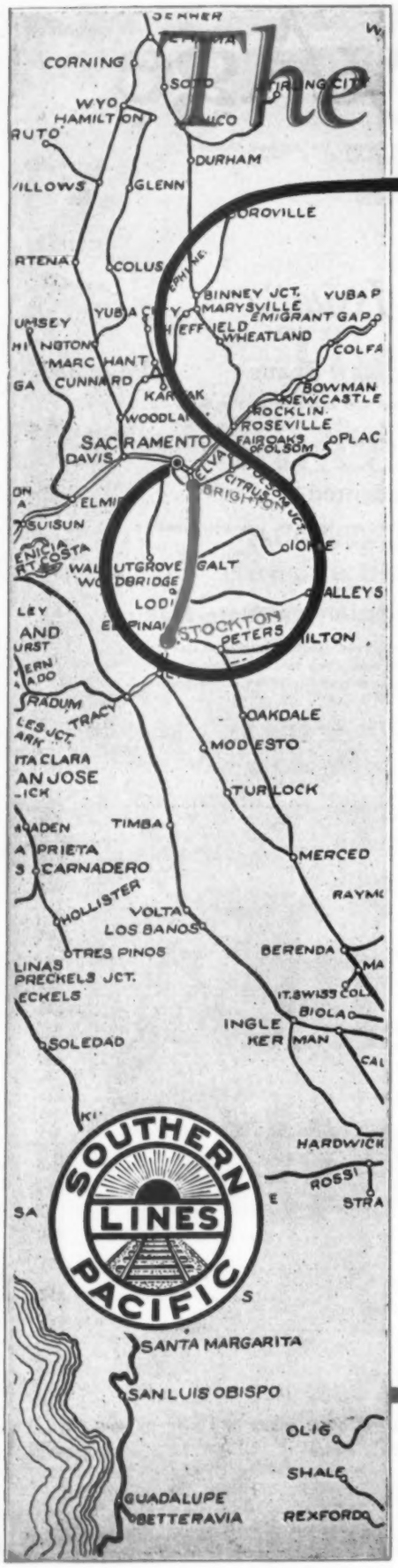

The Problem

To move traffic between Stockton and Brighton without double-tracking at an expenditure of over $2,500,000.

Southern Pacific will speed up Operations in California district by - -

THE Stockton to Brighton subdivision consists of double track line from Tracy to Akers and a single track line from Akers to Brighton. Over this 40-mile stretch it is necessary to handle traffic from 4 different subdivisions. The traffic is composed of about 7 regular passenger trains daily and during the winter and spring months the freight trains average from 9 to 15 daily.

In the summer and early fall months, however, the heavy movements of perishables result in a peak as high as 40 trains daily which greatly congests the single track from Akers to Brighton. The problem, then, was to move this traffic without the necessity of double-tracking, a project whose estimated cost was more than $2,500,000.

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Railway Age

Vol. 87, No. 5 August 3, 1929

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Investigating Traffic and Purchases

THE Interstate Commerce Commission has ordered an investigation of "reciprocity in the purchases by the railroads and the routing of traffic by the manufacturers and dealers." The investigation is to be "with particular reference to the extent, if any, to which such purchases from any manufacturer, producer or dealer are dependent upon or influenced by the routing of traffic controlled directly or indirectly by such concerns." It has long seemed probable that sooner or later this subject would be investigated by the Interstate Commerce Commission or the Federal Trade Commission, or both. Many concerns, large and small, old and new, compete for the opportunity to sell equipment, devices, materials and fuel to the railways. All of them are shippers. Some directly or indirectly control a large amount of traffic, and some less, or even very little. A railway may make its purchases entirely on the basis of the quality and prices of the things bought, but it may also be influenced by the effect that will be produced upon its traffic. There have been numerous complaints within recent years that the purchases of many railways are being increasingly influenced by traffic considerations. Many such complaints have been sent to the Interstate Commerce Commission and the Federal Trade Commission. The investigation now ordered is the result.

It is interesting to speculate upon what will be the outcome of this investigation. As a manufacturer may use his traffic or that of some other concern to influence the purchases of a railway, so a railway may use its purchases to influence manufacturers in routing their traffic. The railways are subject to extensive and detailed regulation by the Interstate Commerce Commission. Industrial concerns are subject to much less extensive and effective regulation by the Federal Trade Commission. The result of the Interstate Commerce Commission's taking the initiative in making an investigation is that the railways have become the respondents. This might easily result in the public misunderstanding the situation. "Reciprocity" in the making of purchases and the routing of traffic may be held to be either sound or unsound, but whether it is the former or the latter no criticism can be made against the railways for using their purchases to influence traffic that cannot be made with equal or greater force against manufacturers for using their traffic to influence railway purchases. Since the Interstate Commerce Commission is to conduct an investigation and perhaps hearings in which the railways will be the respondents, it would seem that the Federal Trade Commission might well conduct an investigation of the same subject in which the manufacturers would be the respondents.

The merits of "reciprocity" purchasing and routing of traffic have been much discussed. It has been charged and denied that they are "unethical." The *Railway Age* has never discussed the ethics of these practices because we have never thought that any question of morals was involved. We have discussed them because we have believed that, in the long run, whether individual railways gained by them or not, their tendency was to injure the railroad industry as a whole. They cannot by any possibility increase by one ton the traffic of the railways as a whole. They do tend to increase the operating expenses of the railway industry, because it does not seem reasonable to assume that a railway will be able to buy on as favorable terms when traffic considerations influence its purchases as when its purchases are made entirely on the basis of quality and price.

In the early history of railway regulation there were some who contended that regulation should consist almost exclusively of publicity. They believed that if the greatest practicable publicity were given to the facts regarding the financing, management and operation of railways, the force of public opinion would abolish such abuses as prevailed and prevent others from developing. Widely differing opinions have been expressed as to the soundness of the trading of traffic for purchases and of purchases for traffic as a business practice. Widely differing opinions also have been expressed as to the extent to which the practice prevails. Some claim that the extent of it has been greatly exaggerated. Others defend themselves for engaging in it upon the ground that it is general, and that they will not get their share of business unless they use the same tactics that are used by their competitors.

The investigation is likely to put many railway officers in an embarrassing position. They will realize the inexpediency of failing to give the Interstate Commerce Commission all the information it wants; but they will realize, at the same time, that those who are most frank in giving information will take the risk of having more or less traffic diverted from their lines. It is to be hoped, however, that the commission will be furnished full information. If "reciprocity" has prevailed less generally than many believe, it is desirable that this should be known. If it has prevailed widely, it is desirable that this should be known. The publicity resulting from the investigation can do no harm to the railroad industry, because it can hardly result in condemnation of practices that are sound, and it will tend to destroy any practices that are unsound.

The ominous thing about the investigation is indicated by the commission's statement that it is to be con-

ducted "with the view to making such order or orders or taking such other action in the premises as may be warranted by the record." By the provisions of the Transportation Act the commission is charged with the duty of so adjusting the rates of the railways that they will be able to earn a fair return under economical, efficient and honest management. Probably therefore the commission has authority to issue orders regarding any practice affecting the economy, efficiency and honesty of management, but the power to issue orders and the desirability of doing so are widely different things. A very large measure of discretion must be exercised by railway officers in seeking traffic and making purchases if the railroads are to be efficiently managed. Whatever may be the shortcomings of railway management at present, there can be no question whatever that, on the whole, the railways are now being more efficiently managed than ever before, and while investigation and publicity as respects purchases and the routing of traffic may do good, it seems highly improbable that any general orders respecting them could be issued that would do any good. Certainly if there is to be any regulation excepting through investigation and publicity it should not be applied to the railways alone, but should be equally applied to all concerns that use their traffic or that of other concerns to influence the purchases of the railways.

Trends in Passenger Business

THE statistics regarding the passenger earnings of the railways during the present year which are thus far available illustrate in an unusually striking way the widely different trends that prevail in the different classes of passenger business. Their total passenger earnings in the first five months of the year declined, as they have been steadily declining for years. They were $360,450,000 in the first five months of 1928, and only $351,654,000 in the first five months of 1929. The surcharge revenues collected are a sure indication of the amount of travel in sleeping and parlor cars. They amounted to $16,326,130, which is the largest amount of surcharge collected in the first five months of any year. The amount of surcharge revenue being collected by the railways this year is 25 per cent greater than in 1921, which indicates a corresponding increase during the last eight years in the amount of travel in sleeping and parlor cars. The statistics available indicate that meantime travel in day coaches has declined about 50 per cent—in other words, the amount of travel in them is now only about one-half as great as it was in the depressed year 1921, and consequently is considerably less than one-half as great as it was in 1920.

It is significant that no change comparable to this has occurred in the passenger business of the railways of any other country. In Germany, for example, the motor truck has made inroads upon the freight business of the railways, but their passenger business has continued to increase, and is now larger than before the war. The explanation is to be found in the unparalleled prosperity that prevails in the United States. The great and generally diffused prosperity of the American people enables all classes of them to own and use automobiles, a condition which does not exist in any of the older countries of the world, and, of course, the extensive and increasing use of automobiles here is the cause of the continuing losses of railway passenger business.

The Parking Problem—How Railways Meet It

ONE of the greatest problems which confront the American city today is to provide streets of adequate capacity for the enormous traffic that has resulted from the remarkable increase in the use of motor vehicles. This has given rise to vast programs for new streets and street widening and also to efforts to effect a more efficient utilization of potential street capacities by drastic restrictions on parking. But here the public authorities are confronted with strenuous objections on the part of the property owner who contends that such action constitutes an infringement of established rights.

Regardless of the merits of this controversy, it is a fact that the property owner is suffering from the effects of street congestion. Parking restricts the traffic and reduces the number of vehicles that are able to reach his place of business, while restrictions on parking result in inconvenience to his patrons. With remote exceptions, the railroads are the only property owners who have made any effort to meet this situation by what appears to be the logical solution—that of providing on their own property ample space for the loading and unloading of passengers, baggage, freight and mail, and for the parking of vehicles awaiting opportunity to unload. There are, of course, many old passenger and freight stations which do not provide ample standing space for all vehicles to be served. This is true in particular of space for taxicabs at stations built before the advent of this mode of street transportation, but the newer stations provide great marshalling areas for this purpose—in fact, the policy is now so thoroughly established that it is taken as a matter of course. But why should this practice be confined to railway property? Is it not equally applicable to hotels, theatres and department stores? Have not the railroads pointed the way to the solution of one phase of the street congestion problem?

July Equipment Orders

WHILE activity in domestic railway equipment buying during July showed a decline as compared with the previous month, totals were nevertheless above those of the corresponding 1928 month for every type of equipment, with the exception of freight cars, orders for which dropped from 307 in July, 1928, to 242 last month. Freight car orders for June, this year, totaled 5,869. The total number of freight cars ordered so far this year is 59,371, which compares with 22,633 ordered during the corresponding period last year, and makes a total of 8,171 more than the 51,200 ordered during the entire year 1928.

Passenger car orders showed an increase over July, 1928, with orders for 89 this year as compared with 19 ordered in the same month last year. In June, this year, however, 176 passenger cars were reported ordered. Passenger car orders for the first seven months this year now total 928 as compared with 1,113 for the same period in 1928. During the past month 36 locomotives were ordered as against 32 ordered during July, 1928, and 181 during June, 1929. This makes a total of 557 locomotives ordered during the first seven months of this year and compares with 171 reported during the same period last year. This year's figure so far is now

only 46 behind the 603 ordered during the entire 12 months of 1928.

Orders for iron and steel increased during July and surpassed in total tonnage both the month previous and also the total for July, 1928. Structural steel orders totaled 10,750 tons for the month just past, as compared with 1,818 tons reported for the same period last year, and 6,365 tons during June this year. Rail orders reported during the month totaled 71,500 tons, as compared with 25,000 tons ordered in July, 1928, and 44,064 tons ordered during June this year.

These lower totals of equipment orders for the month of July are seasonal in character, and cannot be interpreted as indicating a declining tendency. Corresponding months during the past four or five years show this seasonal decline during July and August. With 1929 freight car orders already far in advance of 1928's total for the entire year, and total locomotive orders less than 50 behind last year's 12-month total, equipment manufacturers may reasonably look forward to continuing favorable markets during the remainder of 1929.

Technological Unemployment

THERE has been considerable discussion lately of "technological unemployment"—which means unemployment occasioned by the introduction of modern machinery and improved methods of production. Theoretically, there should be no technological unemployment—at least in the long run—since improved methods ought to bring down prices and thus increase consumption to the point where men thrown out of work by more efficient methods would quickly be called back to help increase production, or should readily find employment in new industries called into being by the increasing national wealth. The theory, however, provides but small comfort for the man actually out of a job pending the time when economic forces shall adjust themselves and call him back to work. The only condition which can protect the individual employee under such circumstances is for production to increase rapidly enough while efficiency is being improved so that no reduction in employment is necessary.

This condition has, unfortunately, not obtained in the railroad business in recent years. The reason it has not, is that the growth of traffic has not been as rapid as it once was, and not proportionate to the increase in operating efficiency. The failure of traffic to increase at its former rate has been due in great measure to the development of highway transportation and to increased competition by the waterways. Some measure of shifting of transportation work to the newer agency has been inevitable. On the other hand, there can be no question but that much of the competition by the highway and an even greater proportion of that by waterway has arisen, not from inherent economic advantages, but from artificial legal handicaps which apply to the railroads but not to their competitors. If all forms of transportation were taxed and regulated on the same basis, then it is safe to say that "technological unemployment" on the railroads would be much alleviated.

In an editorial which appeared in the *Railway Age* of May 4 we asked the question, "Are Railway Unionists Waterway Advocates?" We based this question on an editorial in the publication "Labor" which plainly exulted over proposed extension of government-operated waterway services. Now comes the "Railroad Trainman," in its July issue, and solemnly informs us that certainly the employees represented by the Brotherhood of Railroad Trainmen do not advocate waterways in preference to rail transportation. We can assure the "Railroad Trainman" that the question we raised was largely rhetorical. We do not, of course, believe that railroad employees as individuals actually favor a propaganda which could only serve to reduce their numbers. On the other hand, silence serves often as consent.

Railroad employees, if they were fully informed as to the actual situation regarding the competition which has resulted in unemployment among them, could help mightily in correcting the condition by their influence upon public opinion in their communities. Improvement in efficiency must continue, if the railways are to hold business in the face of competition. But improved efficiency need not bring reduction in employment, provided sufficient new traffic can be secured.

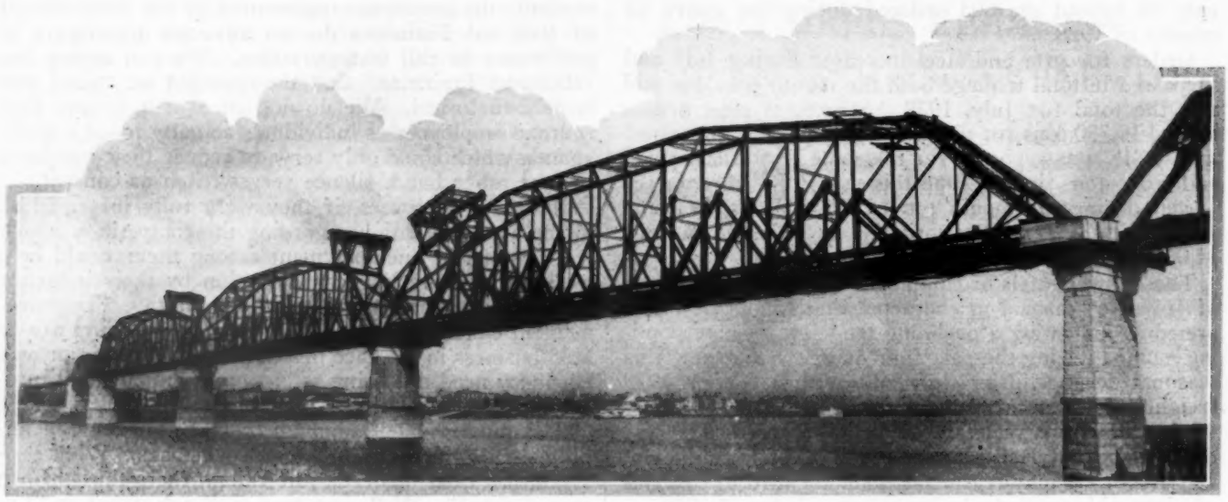
The publication "Labor" in commenting on the improved fuel efficiency of the railroads asks, "What provision has been made for the rail workers thus thrown out of jobs?" Well, one may well ask, what is "Labor" doing for them? Is it doing anything to aid an increase in railroad business, which would provide jobs for these workers? Is it not rather with all the force it can command advocating just those policies which, if successful, would reduce the number of jobs the railroads could find for employees released by necessary improvement in efficiency?

More Second Track

ONE of the most outstanding achievements of the railways during the last few years has been the extent to which they have been able to increase the traffic-handling capacity of their properties by developing means for their more intensive use. By such measures results have been secured which would have been considered impossible a few years ago. Consequently, there has been a decline in the construction of second and other multiple main tracks in recent years out of all proportion to expenditures for other improvements.

There is a point of saturation, however, beyond which the capacity of a track cannot be pushed. There is another and considerably lower point also beyond which additional facilities are held back only at the expense of operating economy and that flexibility which is so necessary if peak surges of traffic are to be handled smoothly and efficiently. The best proof of this is the fact that the roads which are making the best showings are those which have a surplus of capacity sufficient to enable them to handle an increased business with profit to themselves.

This subject is of special concern at the present time when traffic is increasing to new record levels and thereby more nearly approaching the capacity of many divisions than ever before. At the same time the requirements of the service are more exacting, for schedules of freight as well as passenger trains are constantly being shortened. Furthermore, the proportion of perishable to drag freight is steadily rising. These conditions make it increasingly essential that delays to trains be eliminated and that they be kept moving. It appears evident that the time is rapidly approaching, if it has not already arrived, when we will see a resumption of second track construction on an active scale. In fact on not a few roads studies are already being made to determine where needed increases in capacity by the construction of second track can be secured most readily.



The New Steel Imposed a Load of 9,000 lb. per ft. on the Old Spans

Old Spans Serve as F f

Big Four employs novel methods in renewing Ohio river bridge at Louisville

THE use of old spans, which had been in service since 1893, as the falsework upon which new spans were erected comprises the most outstanding feature of a bridge renewal project carried out by the Cleveland, Cincinnati, Chicago & St. Louis, which embodied many other departures from conventional practice. This feat is the more remarkable because of the size of the structure, which is the Ohio River bridge at Louisville of the Louisville & Jeffersonville Bridge & Railroad Company, the stock of which is all owned by the Big Four. The river crossing proper embraces three main spans 547 ft. long center to center of bearings, flanked on the north by one 208-ft. span and on the south by two spans 338 ft., 4 in. long. Owing to the fact that it had been found impractical to confine train loads to limits within the carrying capacity of the bridge, its use by heavy trains was discontinued about six years ago, while its use by the interburban cars of the Interstate Public Service Company, which holds trackage rights over the structure, was suspended in July, 1928, on account of reconstruction. Therefore, the construction work was not hampered by train movements, but the unusual erection scheme adopted for the three long spans imposed a load on the old trusses of about 6000 lb. per lineal foot of span.

How the New Bottom Chords Were Supported on the Old Floor Beams

But this erection plan introduced many problems of design and construction other than the mere matter of the erection load to be carried by the old superstructure. The new spans, like the old ones, provide for a single track, and as the old trusses were spaced 30 ft., center to center, there was no choice but to place the new trusses at a closer spacing so that they could be brought inside the old trusses. Since the maximum spacing possible, 24 ft., 6 in. center to center, amounts to less than one twenty-second of the span length, a difficult problem of lateral stiffness was imposed, but this was solved by resorting to independent wind truss chords placed below the main chords and outside of the ends of suspended floor beams at a spacing of 30 ft. center to center, and in a horizontal plane with the bottom laterals.

By far the most serious problem introduced by the

A Progress View in the Erection of the New Trusses

Falsework for New Spans

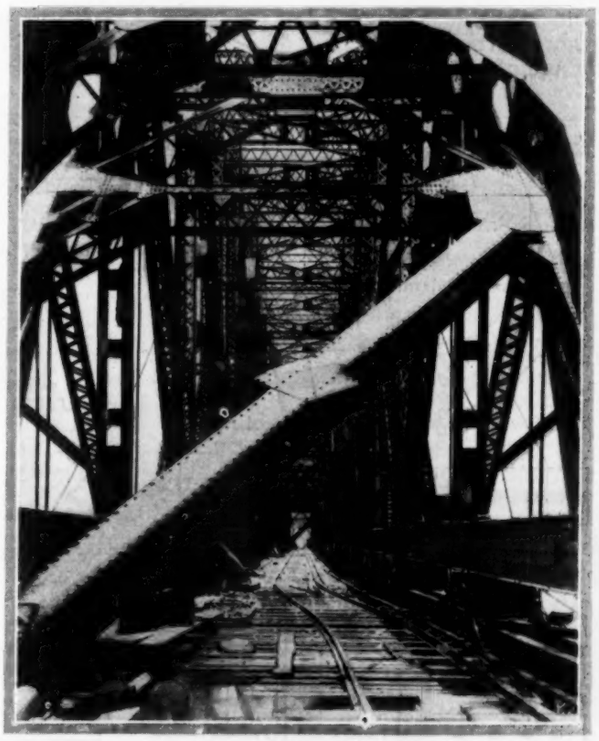
erection scheme was the yielding nature of the support afforded by the old trusses. The weight of each new member erected changed the deflection curve of the old superstructure, the extent of which had to be determined in advance to insure the correct "no-load" camber of the new trusses. However, the most critical situation was confronted in the closure of the top chords with the placing of the last members and in swinging the spans, as will be described later.

The old bridge was built as part of an independent terminal development at Louisville, later acquired jointly by the Big Four and the Chesapeake & Ohio, and subsequently by the Big Four alone, except for certain trackage in Louisville retained by the C. & O. The bridge serves as the entrance of the Big Four into Louisville and as a physical connection between that road and the Louisville & Nashville, for which purpose a special wye connection viaduct was built at the south end of the bridge in 1910-11. Train movements over the bridge have been confined largely to freight, primarily a heavy northbound coal movement, passenger service being limited to two Big Four trains daily, and the interurban cars of the Interstate Public Service Company. During the suspension of service, trains were handled over two other bridges across the Ohio at Louisville.

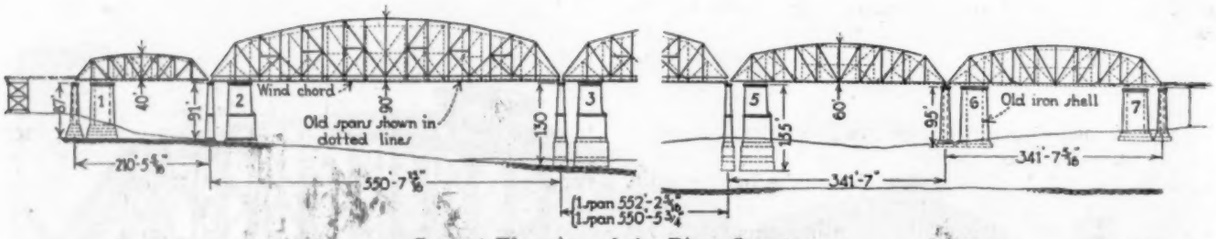
Steel Viaduct Included

In addition to the river crossing, the bridge includes a steel viaduct 3,300 ft. long on the Jeffersonville end and 3,900 ft. of viaduct on the Louisville end, of which 2,100 ft. is in the original approach extending on a curve to the west from the shore pier, and 1,800 ft. included in the viaduct connection with the L. & N.

The bridge is a high-level crossing providing about 75 ft. of headroom above full pool stage in the river. Piers 2, 3, 4 and 5 are of limestone ashlar masonry, backed with natural (Louisville) cement concrete except for the three top courses which were of solid stone. Available records of construction and a recent investigation gave assurance of the adequacy of the foundations, and no change was found necessary other than to provide the piers with jackets of concrete at the tops. Piers 1, 6 and 7 consisted of shells of ⅜-in. iron plates filled with a core of natural cement concrete, Pier 1 being supported on rock and Piers 6 and 7 on pile foundations. These piers were very narrow, Pier 7 being only 6 ft. wide at the top and 9 ft. at the bottom of the footing. To pro-



After a Heavy Wind Forced the Old Trusses of One Span Out of Line, Temporary Ties Were Introduced in the Portals



General Elevation of the River Structure

vide adequately for the loads which these three piers must carry, it was necessary to encase them with a complete jacket of concrete of such dimensions and with the necessary footings and pile support that this encasement could be assumed to carry the full superstructure load independent of the old construction.

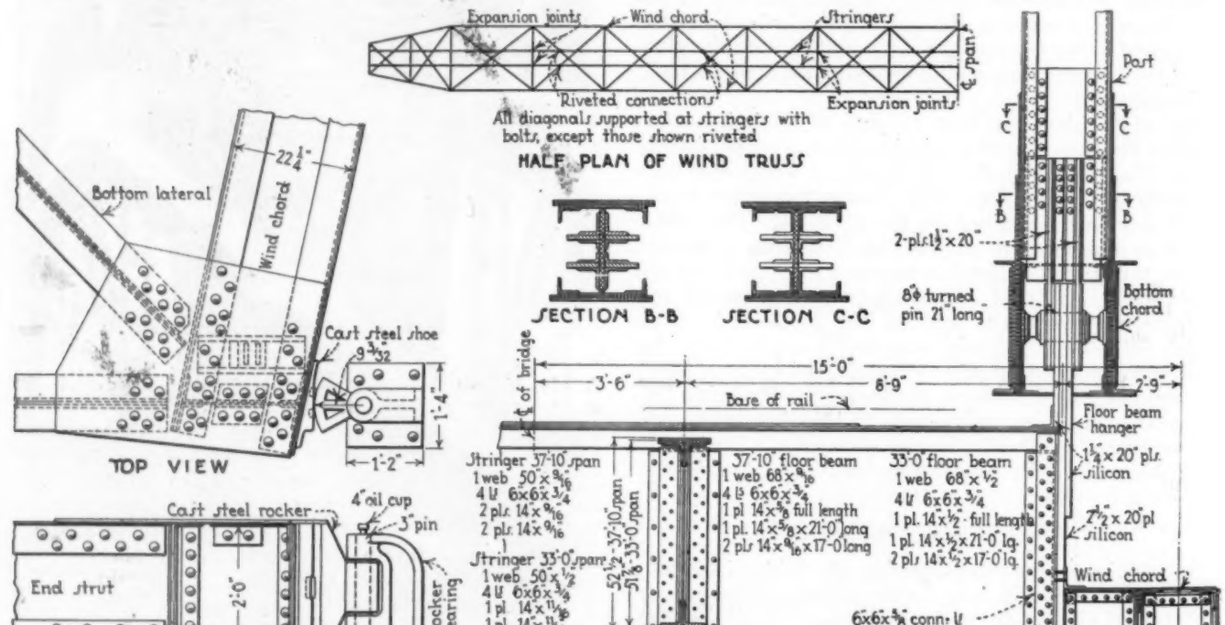
The new trusses conform to current practice for riveted spans, except for the fact that no part of the top chords is horizontal, there being a slight vertical angle at the intersection of the chords at mid span. All of the superstructure is carbon steel except the main trusses of the three 547-ft. spans which are of silicon steel, exclusive of battens and lacing. The rivets are 7/8-in. in diameter except those in main-member splices of the long spans which are 1 in. in diameter. Rivets with a grip of over 5 in. are tapered.

As previously stated, the new spans were given a width such that the new 547-ft. spans could be erected inside the old ones (the other three spans were renewed on falsework). This imposed the requirement that the bottom chords of these three new truss spans be placed high enough so that they would clear the floor of the old spans and could be supported on the old floor beams during erection. To meet this requirement without changing the track grade, it was necessary to resort to an expedient not often employed in present-day bridges, that of suspending the floor beams below the trusses by means of hangers carried on pins. The design of these hangers and the use of pins were contingent on certain factors relating to the action of the lateral truss system, as will be explained later.

Special Problems Introduced by Wind Chords

The introduction of a bottom lateral truss system that is entirely independent of the bottom chords of the main trusses of the three long spans required an especially careful study of the distribution of lateral forces between the top and bottom lateral systems. By proportioning the auxiliary wind chords of the lower system on the basis of unit stresses of only 8,000 lb. per sq. in., it was possible to effect a distribution under which the lower lateral truss deflects but one inch more than the top lateral truss, under the maximum wind load assumed in design. The web members of the main trusses were designed for the bending resulting from this difference in the lateral displacement.

As the wind chords were not erected until after the new spans were swung, they were not subjected to dead load stress, but to insure that they would not take live load stresses, special provision had to be made to prevent their elongation with the bottom chords under live load, which amounts to about 1/8-in. per panel under maximum design loading. This was done by anchoring the wind chords to the main chords at mid span by gusset plates, by providing pin-connected hangers for all the other floor beams, as previously mentioned, and by having the lateral reaction of the wind chords transmitted to the bridge shoes through rocker bearings on vertical axes.

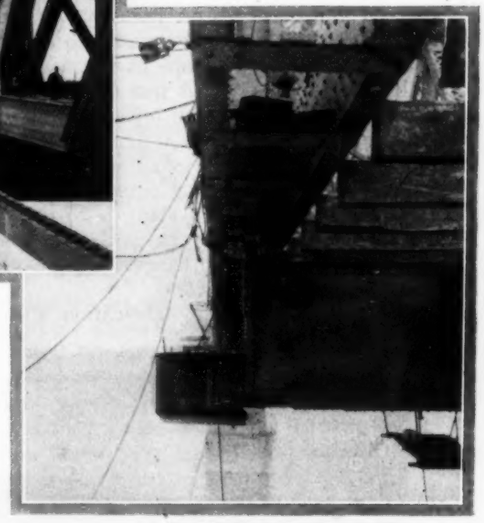


The Use of Wind Chords Introduced a Number of Special Features

as shown in one of the drawings. To divide up the swing of the floor beam hangers, the length of the wind chords was increased 1/16-in. per panel, expansion joints in the floor stringers being introduced at intervals of three panels.

This arrangement introduced two primary problems in the design of the floor beam hangers—to insure against wear on the pin bearings and to make the hangers stiff enough to transmit the wind forces to the lateral system. The first requirement was met by using pins of an excessive diameter, designed for a bearing pressure of only 12,000 lb. per sq. in., and by providing means to oil the bearings. The second was overcome by the use of thick hanger plates; they have a gross section of 20 in. by 5 in. The pins do not pass through the bottom chords but are supported in pin plates forming a part of box diaphragms that are framed into the posts. The lateral thrust from the trusses is transmitted directly to the pins by means of adjustment nuts on the pins as shown.

Above—a view of one of the new 550-ft. spans with a part of the old end post still in position, showing a portion of the Fink truss that had been introduced to obtain greater lateral stiffness



At the Left—A side view of one of the 550-ft. spans showing the wind chord below the bottom chord
Below—A floor beam and one of its hangers and an end view of a wind chord member (The wind chord was not yet erected in the panel in the foreground)

Careful Distribution of the Load During Erection

To erect the new trusses on the old spans it was necessary to cut notches two inches deep in the inside flanges of the old end posts to clear the new bottom chords. It was also necessary to reinforce the top flanges of the old floor beams under the points of bearing of the new trusses. The lower chords and lower sections of web members were erected first across the entire span (with a locomotive crane) to obtain as uniform a distribution of the load as possible. Following this a gallows traveler erected the upper sections of the web members, the top chords and the top lateral system from the top chords of the old trusses. Enough blocking was placed under the new bottom chords so that there was a gap of three inches in the top chord at mid span when the closing member was inserted. This was on the basis of a calculated deflection of seven inches in the old span when carrying the entire weight of the new span (exclusive of the floor and bottom lateral system which were not erected until later.)

To close this gap it was necessary to jack up each end of the new span four inches, but this had the effect of gradually relieving the old trusses of load near the ends and concentrating it near the center. Consequently, the jacking was done in lifts of one inch after each of which the blocking was adjusted to maintain the normal distribution of the load, as determined by levels taken at each panel point of the old span. As a matter of fact, the deflections at all panel points of the old spans under all conditions of erection loading were calculated in advance and these were checked by levels taken during the course of the erection, as a check on the behavior of the structure. The measured and calculated deflections checked remarkably well.

To swing the new span after closing the top chords, it was necessary to continue the jacking at each pier until the 7-in. deflection was taken out of the old span and a dead load deflection of 2 in. was introduced in the new span, or a total vertical lift of 9 to 10 in. The new spans have no camber under full dead load. All jacking for these operations as well as that necessary for the placing of the new bearing shoes had to be done under end floor beams capable of carrying the weight of the new and old spans, under the bending moment imposed with a spacing of the jacks of only 7½ ft. each side the center line of the bridge. These were the heaviest erection units, weighing 30 tons each.

Heavy Winds Cause Concern

After each new span was swung the old one was supported from it on brackets attached to the outsides of the new posts just under the old top chords. The next step was to remove the old floor and erect the new one, this being done in part with an overhead cableway supported from the intermediate cross struts. The rest of the old steel was then taken out piecemeal.

One factor that gave much concern during the erection

Erecting the New Floor Beams

was the possibility of high west winds, which occur at intervals between December 1 and June 1, every year and to provide greater stiffness in the old spans the end posts were reinforced preparatory to erection by the introduction of Fink trusses outside each post in the planes of the portals. These were undoubtedly beneficial, but during a storm that occurred on January 18, with wind velocities for short intervals estimated to exceed 90 miles per hour, the top chord of one of the spans was pushed out of line two inches. This was corrected by introducing a diagonal tie across the lower panel of the portal and pulling the trusses back into line. These ties were left in place until the new span was swung. All steel was delivered to the erecting equipment on cars except the wind chords and floor system of Span 3 which were floated under the span on barges. The old steel for Span 2 was lowered on to barges, but all other old material was hauled away on cars.

The project involved the fabrication and erection of 15,661 tons of structural steel, of which 8,840 tons is in the river spans, 3,145 tons in the Indiana approach and 3,676 tons in the two Kentucky approaches. About 14,800 cu. yd. of concrete was placed in [illegible] river piers and in the construction of pedestals for the viaducts, which also involved the driving of 50,500 lin. ft. of concrete piles, 16,400 lin. ft. of creosoted piles and 21,600 ft. of untreated piles for foundations. About 95,000 cu. yd. of filling was placed on the Indiana side and 15,000 cu. yd. on the Kentucky side in reducing the length of the viaducts a total of 1,900 ft.

Work on the substructure was started on April 6, 1928. Falsework erection for the replacement of the three shorter spans was begun on June 1, 1928 and the erection of the long spans was started on October 15. The last of the long spans was swung clear of the old superstructure on April 26, 1929. The bridge was opened for traffic on June 25, 1929.

Miscellaneous Features

Among incidental features of interest is the special provision made to protect the top flanges of the stringers from corrosion where they are covered by the ties. A piece of 10-oz. duck, just twice the bearing area of the tie on each stringer, was soaked in red lead paint, doubled and placed on the stringer as the tie was set into place. All pins, sliding bearings and rollers were coated with No-ox-id.

Fire Protection

Fire protection is provided by water barrels placed on the bridge and viaduct decks at intervals of 300 ft. In addition a 4-in. pipe line has been carried across the structure, with hydrants at intervals of 300 ft., at each of which 150 feet of 2½-in. hose has been attached and racked. This is necessarily a "dry-pipe" system, siamese connections being provided at the street level on each side of the river for local fire department hose lines.

The bridge was designed and erected under the direction of J. B. Hunley, bridge engineer of the Cleveland, Cincinnati, Chicago & St. Louis, construction being supervised by E. A. Humphrey, district engineer. A. A. Keever was resident engineer. The McClintick-Marshall Company, Pittsburgh, Pa., had the contract for the fabrication and erection of the steel, and the Walsh Construction Company, Davenport, Iowa, the contract for the concrete work and the grading.

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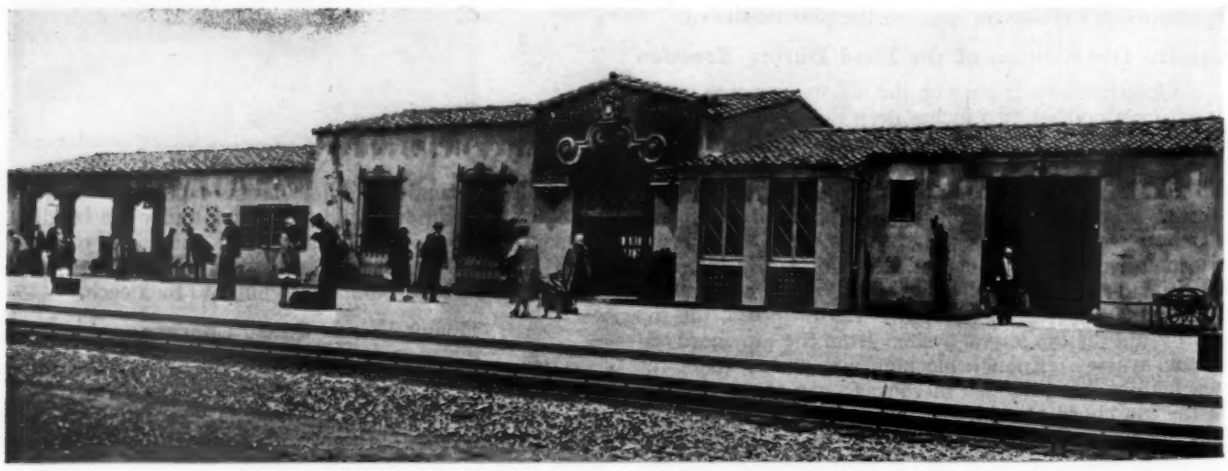
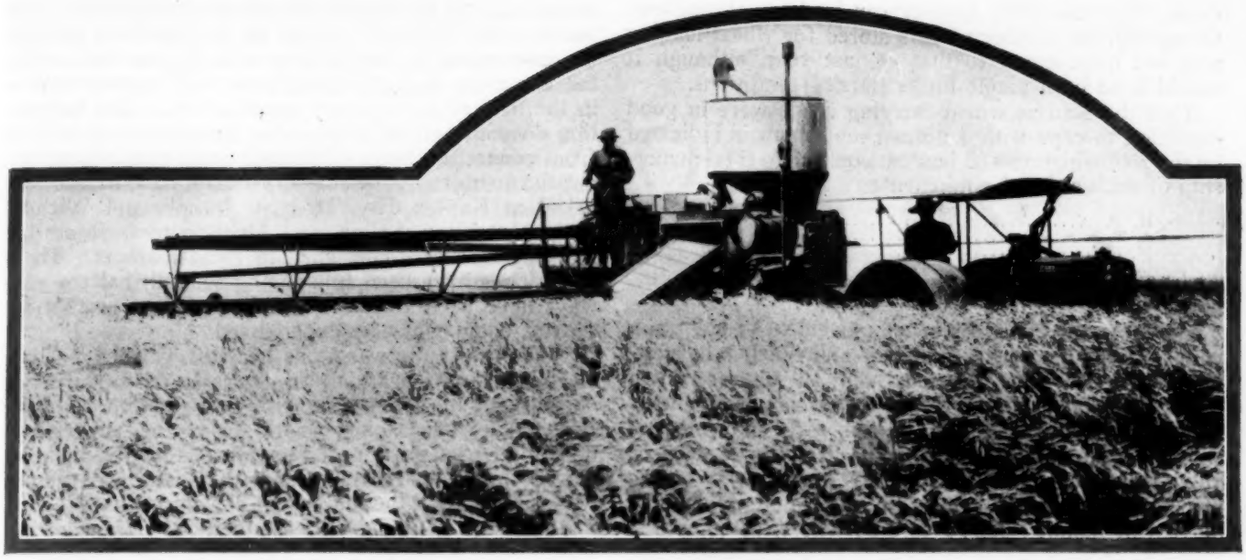


New Passenger Station of the Union Pacific at East Los Angeles, Cal.



Harvesting by Combines Has Resulted in Dumping the Crop on the Railways All at Once

Kansas Wheat Movement Unprecedented

Heavy peak traffic taxes railway and elevator facilities

AS a result of a lack of storage facilities at farms and elevators and a shortage of cars, a number of elevators in Kansas had to close for a few days early in July and considerable quantities of wheat were stored on the ground. At the worst period, about 70 elevators were closed, and some 800,000 bushels of grain stored on the ground. This occurred notwithstanding the fact that, in the crucial period of the first two weeks of July, 6,200 more cars of wheat were loaded and moved by the railways than during the same period last year.

The Kansas wheat crop literally poured in on the railways. This year's crop according to present estimates, will be slightly under that of last year. However, the amount of old grain in storage at the beginning of the season was unprecedented and the reported scantiness of the wheat crops in other sections sent the prices upward. The result was that all this old grain began to move, just at the time when the new crop began to come in. Also, this year's crop was harvested unusually early, and the increasing use of combines caused a larger proportion of it to be brought to the elevators and to the railways direct from the field than ever before. This, coupled with a movement of old grain that far exceeded any such previous movement, caused a serious lack of storage facilities, and resulted in more or less acute car shortages at various places for short periods, the first time this situation has existed in seven years.

This caused the railways to receive considerable adverse publicity such as a telegram which Senator Brookhart of Iowa sent to the Interstate Commerce Commission, asking that the situation be investigated at once. That this criticism was largely undeserved is indicated by the facts in the case.

Prior to the movement, the railways had more than 30,000 cars stored in the growing territory, including 8,000 on the Santa Fe, 5,400 on the Chicago, Rock Island & Pacific, and other roads in proportion. Be-

Wheat Handling: Kansas-Oklahoma Crop—Detail of Cars Handled Daily

Date	A. T. & S. F.		Mo. Pac.		C. R. I. & P.		U. P.		St. L.-S. F.		M-K-T		TOTAL	
July	1928	1929	1928	1929	1928	1929	1928	1929	1928	1929	1928	1929	1928	1929
1	138	1650	...	174	...	474	..	109	...	174	...	198	138	2779
2	495	1792	71	160	485	633	10	140	225	137	74	114	1360	2976
3	796	1905	153	192	1138	872	30	203	425	104	131	94	2673	3370
4	876	1783	...	(	...	(	63	188	...	...	...	...	939	1971
5	1408	1865	317	(648	996	(777	122	255	271	85	261	198	3375	3828
6	1764	1895	354	443	909	855	160	340	262	113	254	147	3703	3429
7	1885	....	419	...	913	...	171	...	300	...	143	...	3831	....
8	....	1332	...	494	...	697	...	293	...	178	...	175	....	3169
9	936	1897	419	357	739	605	103	247	178	125	182	78	2557	3309
10	1449	1765	374	290	737	621	82	222	194	86	147	98	2983	3082
11	1850	1633	344	189	587	700	81	168	220	95	138	90	3220	2875
12	1700	1767	292	213	571	787	83	201	196	113	143	125	2995	3206
Total	13,297	19,284	2,703	3,160	7,075	7,021	905	2,366	2,271	1,210	1,473	1,317	27,774	33,994

cause of considerably heavier car loadings throughout the spring, the number of cars stored for wheat loading was not quite equal to that of last year, although it would have been ample under normal conditions.

That the Kansas wheat-carrying roads were in good condition to cope with a normal movement is indicated by the following ratio of box cars on line to total ownership of such class of equipment:

M. P.	107.4
A. T. & S. F.	105.7
M. K. T.	92.7
C. R. I. & P.	92.5
U. P.	82.3
St. L.-S. F.	77.8

However, the unusually heavy movement of old grain, coupled with the earlier maturity and quicker harvesting of the new crop, caused such an unprecedented movement that this reserve supply of cars was quickly exhausted. The magnitude of this early movement is shown by the fact that during the first twelve days of July, when the rush to the early market was taking place, the six railways involved in the Kansas-Oklahoma movement handled 33,994 cars of wheat, as compared with 27,774 cars for the similar period last year. The details of this movement in 1929, compared with 1928, are given in the accompanying table which shows the movement separately on the Atchison, Topeka & Santa Fe, the Missouri Pacific, the Chicago, Rock Island & Pacific, the Union Pacific, the St. Louis-San Francisco, and the Missouri-Kansas-Texas. On July 13, 1929, the Santa Fe wheat loadings amounted to 2,124 cars, a record for all time.

Change in Harvesting Methods

It will be observed that the heavy movement of wheat began much earlier this year than last. This was particularly true in the Southwestern Kansas and Oklahoma districts. It was brought about primarily by the increasing use of combines and tractors in this growing territory. This new harvesting method brings about an acceleration in the traffic, and causes a greater peak movement in a shorter space of time. Under the old binder method of harvesting, the grain remained in the field in shocks or stacks for some time after it was cut and bound, awaiting threshing. This resulted in the movement being spread over a considerable period, and made it correspondingly easy to handle.

This change in harvesting methods and concentration of the shipping season has naturally rendered it more difficult for the railways to handle the crop. It has also produced a condition whereby there is insufficient storage space on the farms and at the country elevators. Statistics show that the southwestern portion of Kansas, where the combine method is now used exclusively, and which is the largest wheat-producing area in the state, has less storage available than any other section of the state.

In so far as the storing of wheat on the ground is concerned, investigation develops that this situation was by no means entirely owing to the railways failing to place equipment as ordered. The inability of the elevators to handle the grain was one of the prime contributory causes. Many of the country elevators have increased their loading facilities, but have failed to increase their storage and track facilities, with the result that during the peak period of harvesting, the flow of grain from the farms to the loading points has been greater than the capacity of the loading facilities at those points.

This year has witnessed greater co-operation than ever before on the part of the railways, the advisory board and the state grain inspection departments. The board made a general survey of the situation prior to the movement, in conjunction with the carriers, while the American Railway Association had representatives in the field to aid in every possible way. The association does its part in insuring the prompt return of cars from connecting lines. Terminal grain committees, under the auspices of the advisory board, have been established at Kansas City, Mo., St. Joseph, and Wichita, Kan., Hutchison, Salina, and Atchison to facilitate the movement of cars consigned to these markets. These committees have been functioning so well that the railways have been able to maintain the most prompt return of equipment ever experienced.

While the traffic was at its heaviest, Governor Clyde Reed of Kansas, who is also chairman of the advisory board, kept in close touch with the situation. He received daily telegraphic reports from the superintendents of transportation of the railways involved, showing the number of cars loaded, the number of empty cars supplied and the number of elevators closed. During the first two weeks of July, the headquarters of the board were removed from Kansas City to Topeka, so that the governor might keep in closer touch with the situation.

Another aid has been the change in the methods of the state grain inspection departments. In previous years, the inspections were closed with grain arriving at inspection points up to 9 a.m. and cars arriving after that time were held over for inspection the following day. An analysis of the receipts at the inspection points developed that 30 per cent or more of the cars arrived between 9 a.m. and 3 p.m. Thus, more than 30 per cent of the cars had to be held in the yards for periods of several hours, awaiting inspection. Prior to this season's movement, several conferences were held by the advisory board with representatives of the railways and of the state grain inspection departments, at which plans were worked out to continue the inspection service between 9 a. m. and 3 p. m. As a result, a survey made in July indicates that approximately 40 per cent more cars are being placed on the market on the day of arrival this year, than has been the case in previous years.

This also required a re-arrangement of operating methods on the part of the railways, such as the blue-flagging of trains upon arrival in train yards until grain inspection has been made, and keeping the new and the old grain separate. The additional expense involved has been amply justified by the more prompt release of cars.

The general improvement in yard operations on all the railways involved has also materially aided the movement. The triple-crewing of switching power to obtain its maximum utility has been particularly helpful in this regard. Another aid has been the handling of trains of empties on a manifest schedule from the connections with the eastern lines to the grain fields for loading. For example, the Santa Fe started a train of empties, consisting of more than 100 cars, out of Corwith yard, near Chicago at 3:30 p.m. on July 4. This train was run to Wellington, Kan., a distance of 698 miles, arriving there at 9:15 p. m., July 6, or 53 hrs. 45 min. This included stops at three yards en route for distribution of some of the cars.

Situation Met

The advance preparations and improved operating methods were such that, despite the fact that the railways were called upon to handle what amounted to two crops at once, the car shortages were practically elimi-

nated by July 13. Heavy storms slowed up the harvesting for some days at about this time and retarded the movement of grain to the elevators, although unfortunately for the railways, these storms also caused numerous floods and wash-outs. During the period when traffic was interrupted because of these floods and washouts, the railways co-operated closely in arranging detours and in supplying loads and empties, with the result that the situation was again in hand within a few days and relatively few delays and car shortages occurred and the situation is now well in hand, with the sole exception of an embargo which has had to be placed on Texas ports.

Normally at this season of the year there is a heavy movement of grain to Galveston and Houston for export and a corresponding demand by foreign purchasers. This year, conditions in the grain market have not been favorable to a prompt movement for export and the result is an accumulation of grain, which now amounts to something over 4,000 cars at Galveston and 3,000 more in transit, with local elevators practically full. This has made necessary the placing of an embargo, which prevents any further loading or reconsignment of grain to this port. The embargo will remain in effect until the accumulation is relieved.

The unusual congestion is the result of the vastly increased receipts this year. In 1929, between July 1 and 16, 7,512,450 bu. of wheat were received in Galveston, as compared with 1,737,450 bu. received during the same period last year.

The co-operation of the steamship lines has now been obtained and nine boats were expected to put in for loading this week, with more boats scheduled to arrive next week. This, together with the opening of a newly built elevator at Texas City, is expected to relieve the congestion shortly, and result in lifting the embargo.

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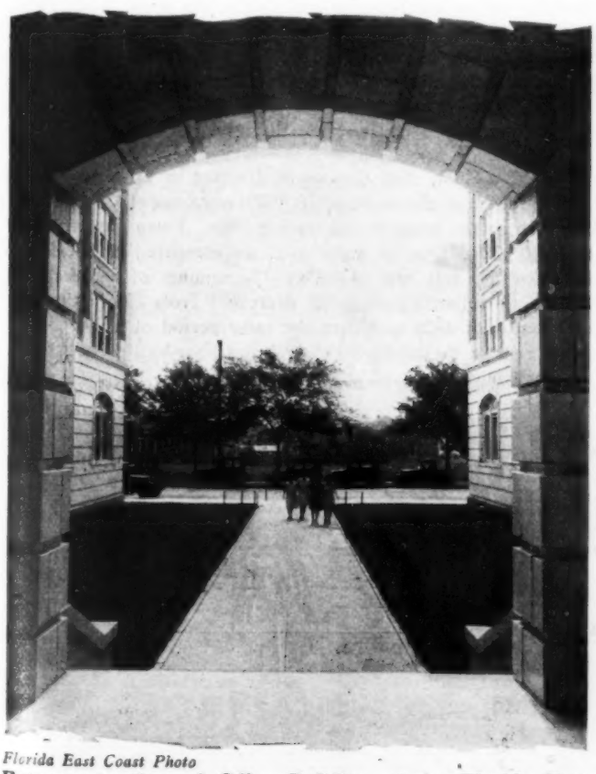


Florida East Coast Photo

Entrance to General Office Building of the Florida East Coast, St. Augustine, Fla.

D. L. & W. Stores Adopt Simpler Office Methods

ONE result of the attention given by the Delaware, Lackawanna & Western stores department to securing greater simplicity and economy in handling the department's clerical work in the last two years is a system of making inter-store requisitions, invoices and shipping notices that has dispensed with five clerks.

The new system eliminates much duplication through the procedure of preparing all papers connected with the transfer of material in one writing. Requisitions,

REQUISITION—INVOICE

Stores DEPT. DATE 4-1-29 REQ.—INV. No. H52

TO C. I. Davis, S.K. SHIP TO W. H. Phillips, S. K.

AT Hoboken, N. J. FOR Stock

CREDIT ACCT. 81 CHARGE ACCT. 54

ON HAND	REQUIRED	DESCRIPTION	WEIGHT	PRICE	UNIT	AMOUNT
2	6	Dippers #33		16	Doz	96
8	12	Marking Pots #34		81	"	9 72
37	30	Tweek Lamp Founts #17		32	"	9 60
12	15	Hanlan #4 Oilers		12	"	7 80
26	12	Japanned Dust Pans #1		96	"	8 00
18	25	Gem Torches #101E		64	"	16 96
10	19	#54 Gem Tallow Pots		24	"	14 06
20	36	Water Cans #104		80	"	7 20
7	10	18" Coal Hods		18	"	2 30
30	24	14 Quart Water Pails #100		96	"	10 08
11	17	Tallow Pot Spouts #19		07	"	1 19
9	14	Coal Hod Bars #31		02½	"	35
5	8	Wash Basins #34		16	"	1 28
21	32	Packing Pails #15		1 88	"	47 36
		Sample #1				

DATE SHIPPED 4-12-29 SHIPPED VIA AX 26515 TOTAL 157 48

APPROVED APPROVED ISSUED

The New Combination Requisition and Invoice Form

invoices and shipping notices used in ordering and supplying material moving between stores usually require at least three separate operations. For instance, the storekeeper ordering the material issues a requisition on the storekeeper furnishing it. The storekeeper shipping the material then issues a shipping notice while a separate invoice is often issued, in addition to the requisition and shipping notice, and when the material is received, some stores operations call for the preparation of a receiving record by the receiving storekeeper.

On the Delaware, Lackawanna & Western, the store keeper who orders the material writes the requisition blank, invoice, shipping notice and receiving record in one operation. The illustration shows a requisition for material ordered by the storekeeper at Hoboken from the storekeeper at Scranton, Penna. The requisition as originally prepared is confined to the typewritten information. When making this requisition, the ordering storekeeper makes three other sheets. The same form that is used in making the first sheet is used in making the second sheet and the other two are made on blank paper. The first sheet, which is the requisition, and the second and third sheets are forwarded by the Hoboken storekeeper to the Scranton storekeeper, while the Hoboken, or ordering storekeeper, retains the fourth sheet for his records.

As soon as the material is shipped by the Scranton storekeeper, Sheet No. 3 is returned by the Scranton storekeeper to the Hoboken storekeeper as a shipping notice, and the Hoboken storekeeper uses this sheet as a receiving record by checking the items and showing the date and way received. No other receiving record is made. Sheets No. 1 and 2 are then priced and extended in one operation by the Scranton storekeeper, after which Sheet No. 1 is retained by the Scranton storekeeper as the requisition, while Sheet No. 2 is sent

back to the Hoboken storekeeper as an invoice. Plain paper is used for the third and fourth copies to save printed forms. In case extra copies are needed, they are made on blank paper.

The difficulty usually encountered in this method of preparing requisitions and orders is the inability at times to supply at one time all the material called for on a requisition and the corresponding necessity of postponing the shipment of some of the material, pending back ordering. This difficulty is minimized on the D. L. & W. by increasing the ability of the shipping store to make complete shipments. The procedure is also facilitated by the use of a material ordering classification under which a storekeeper ordering material from another storekeeper follows the classification numbers which are marked in the stock books for each item and guards against ordering more than one class of material on a requisition. When the requisition is received by the storekeeper furnishing the material, it is not necessary to back order to get the requisition to the department doing the shipping. Where back ordering is required, however, the storekeeper issues two forms corresponding to the first two sheets of the requisition assembly, while a third copy is made on plain paper. These two forms are then handled as in the case of requisitions while the third form, prepared on blank paper, is used by the shipping storekeeper as a shipping notice and is subsequently used by the receiving storekeeper as a receiving record.

The elimination of five clerks is the chief result of the plan but the practice has also proved a source of convenience in shipping procedure, eliminating considerable confusion and speeding up operations.

East Broad Top Operates Rail Motor Car with Success

By P. O. Penn

Sales Department, Westinghouse Electric & Manufacturing Company

THE East Broad Top Railroad Coal Company, a three-foot gage line, has been operating gas electric car M-1 since January 5, 1927, on its main line. The schedule calls for two round trips daily except Sunday between Woodvale, Pa. and Mt. Union, Pa. The distance between these terminals is 32 miles which makes a total of 128 car-miles daily. The run from Woodvale to Mt. Union is made in one hour and thirty minutes while the return trip requires one hour and forty-five minutes. The additional time for the return trip is due to grade conditions. Woodvale has an elevation 1,240 ft. higher than Mt. Union and the ruling grade is 2.65 per cent. Each round trip has eleven regular stops and nineteen flag stops. Regular operation includes the motor car weighing 92,000 lb. (light) and one trailer weighing 32,000 lb. (light) which gives an average loaded train weighing about 68.5 tons.

The equipment consists of one 250 hp. Brill-Westinghouse engine, a differential field-controlled generator and four narrow-gage 75 hp. motors. This equipment has enough capacity to haul a second trailer at times of necessity and still maintain schedules.

Very complete railroad shops at Orbisonia provided efficient facilities to build the motor car body as it required a special structure throughout to meet the 36-in. gage requirements. The engine, tanks and trucks were purchased from the J. G. Brill Company and the complete electrical equipment was furnished by Westinghouse.

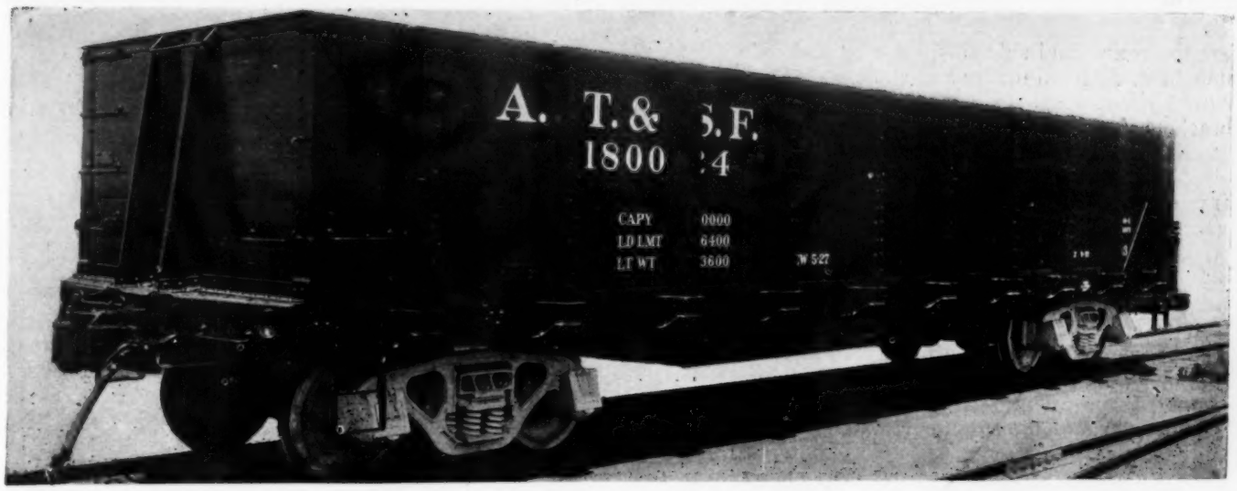
This car is operated with a three man crew—a motorman, conductor and a baggageman. It lays over night away from the central shops and is taken out of service for 24 hr. only once every five weeks, for a thorough inspection. Once each year, a heavy inspection which requires two or three days, is carried out. The car is approaching 100,000 miles of service and will be taken out of operation for a complete overhaul at this mileage.

Records of this car show that it was available for service 300 out of the 312 operating days a year—96 per cent availability. This record may be compared with the average steam locomotive availability of from 40 to 60 per cent of the time.

This gas electric car has shown an economy of 50 per cent, when compared with the steam mileage cost. Steam costs averaged 80 cents per mile, while the gas-electric car is operated at 40 cents per mile with gasoline costing 16 cents a gallon delivered to the car. This equipment has made possible a 20 per cent improvement in running time, three man crews and savings amounting to approximately $1,000 a month, according to C. D. Jones, vice-president of the railway.

LAND SALES BY THE CANADIAN PACIFIC in western Canada during the first six months of 1929 were about 36 per cent less than in the same period during 1928. From January 1 to June 30, 229,638 acres were sold as compared with 358,986 acres for the first half of 1928. The number of settlers who took up Canadian Pacific lands decreased from 758 in the first six months of 1928 to 553 in the same period of 1929. About 60 per cent of the land sold in 1929 has been located in Alberta and Saskatchewan.

East Broad Top Gas-Electric Car M-1 with a Trailer Being Loaded at the Station



Santa Fe 70-Ton Gondola Built by the American Car & Foundry Company

Santa Fe Gondola Has Cast Steel Underframe

Specialties being given comparative service tests on 150 cars used in Texas sulphur trade

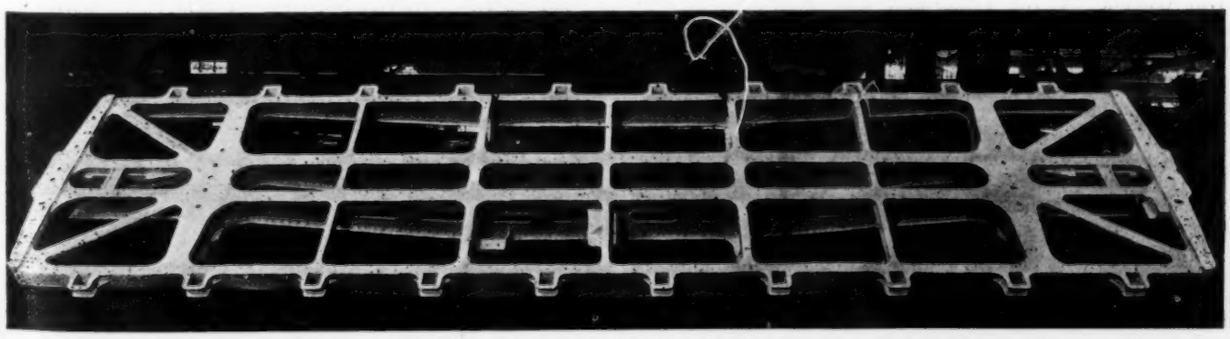
THE Atchison, Topeka & Santa Fe received, in 1927, an order for 150 gondola cars of 70-tons capacity each, 53,500 lb. in weight and 40 ft. by 9 ft. by 5 ft. 2½ in. inside dimensions. These cars, built by the American Car & Foundry Co., have two features of more than ordinary interest. First, being intended for the transportation of sulphur between Texas mines and the docks at Galveston, the cars are made as highly resistant as possible to the combined corrosive action of sulphur and an atmosphere impregnated not only with moisture and salt from the Gulf of Mexico, but with sea shell dust which, accumulated in past centuries, is found in large deposits in that part of Texas.

Since cast steel has much higher resistance to corrosion than pressed steel shapes, the latter material is used as little as possible in the construction of the car and all parts of the underframe are made in a single steel casting which weighs 19,000 lb.

Second, the fact that these cars are not interchanged but are used on a single road and territory, transporting but one commodity and being subject to uniform loading and operating conditions, makes it relatively easy with careful supervision to secure accurate information regarding the comparative performance of various specialties used on the cars. For example, seven different types of draft gears were applied to cars built in 1927, and periodical inspection is being made of the various specialties and performance records are kept. After the cars have been in service a sufficient length of time, it will be possible to determine what the comparative service performance of the different devices has been.

Underframe of One-Piece Cast Steel

Steel underframes for freight cars are usually made of pressed steel shapes riveted together, but the underframe for the Santa Fe sulphur car is made in a single steel casting, manufactured by the Commonwealth Steel Company at Granite City, Ill. Included in this casting



The One-Piece Cast Steel Underframe Furnished by the Commonwealth Steel Company

are the center and side sills, bolsters, end sills, all cross members, diagonal braces and stake pockets. The buffer blocks or striking castings, the draft lugs, and the brackets for the air-brake cylinder and reservoir are cast integral. The center plates on the underframes applied to cars built in 1927 were riveted, but on later frames these are also being cast integral. The draft-gear pockets will take any standard gear meeting the A. R. A. dimensions. This cast steel underframe is not only highly resistant to corrosion but, owing to careful distribution of weight where needed, it possesses unusual strength and is expected to require less in the way of maintenance than a fabricated steel frame. The weight is slightly more than that of a fabricated steel frame of equivalent strength.

Other parts of the sulphur car superstructure include end-sill angles riveted to the underframe and pressed-steel end stakes united to the corner posts and diagonal braces by end chord angles. These, the only fabricated steel parts of the car, are made of copper-bearing steel. One-half of the required number of side stakes are 5½-in. by 6½-in. yellow pine; the remaining side stakes are cast steel and the side and end plank of 2¼-in. pine.

A double course wood flooring is laid in the car to serve as a protection against the severe service encountered in loading and unloading with grab buckets. The lower floor, laid crosswise, consists of 2¼-in. ship lapped yellow pine and extends under the side and end planks. The top floor, laid longitudinally with butt joints, is made of 1¼-in. yellow pine, secured to the underframe by 1½-in. carriage bolts fitted with No. 2 Grip holding nuts. This top floor extends only to the side and end planks so that it can be readily removed and replaced where necessary.

American Steel Foundries cast steel bolsters with the Barber lateral motion device and Dalman type truck frames with integral journal boxes are used on these cars; also Cresco No. 2 Plus brake beams and Schaefer drop-forged Type B brake levers. The side bearings are of the Barber single roller type. Air brake equipment is of the Westinghouse schedule KD-1012 type with special tested air brake fittings. Train lines applied to cars built in 1927 are made of leadized pipe furnished by the Locomotive Terminal Improvement Company, Chicago; later cars are to be equipped with copper-bearing steel pipe and leadized nipples. The hand brakes are designed to develop the full braking power on the car. The cars built in 1927 are equipped with Ajax and Klasing hand brakes.

Among other materials being tested on the cars built in 1927 are the 33-in. wheels which consist of three different types: Rolled-steel multi-wear wheels, furnished by the Illinois Steel Company; double-plate cast iron wheels, by the American Car & Foundry, and single-plate reinforced flange wheels, by the Griffin Wheel Company. The 6-in. by 11-in. journals are equipped with Magnus metal bearings and Sates bearings. Spring packing is used in the journal boxes. Type M journal-box lids, furnished by the Railway Steel Spring Company, are applied to these cars. Both Thornburgh and Chaton dust guards are used. The 6-in. by 8-in. couplers are of the A. R. A. standard D type with Imperial uncoupling arrangement.

THE SAN FRANCISCO BOARD OF SUPERVISORS has voted to support before the Interstate Commerce Commission, the application of the Great Northern and the Western Pacific to construct a new line in Northern California and Southern Oregon. The city attorney is instructed to intervene for the city.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended July 20 amounted to 1,078,695 cars, an increase of 44,852 cars as compared with the corresponding week of last year and of 66,110 cars as compared with 1927. Increases as compared with the corresponding weeks of the past two years were shown in the loading of all classes of commodities except livestock, which showed decreases as compared with both years, and forest products, which showed an increase as compared with last year but a reduction as compared with 1927. All districts except the Southern also reported increases over the figures reported for the past two years. The Southern showed decreases as compared with both 1928 and 1927. The summary as compiled by the Car Service Division of the American Railway Association follows:

Revenue Freight Car Loading

Week Ended Saturday, July 20, 1929

Districts	1929	1928	1927
Eastern	242,185	231,868	230,370
Allegheny	221,571	208,533	204,919
Pocahontas	59,732	55,267	57,114
Southern	137,567	139,494	149,521
Northwestern	172,096	159,251	154,653
Central Western	162,739	157,332	142,337
Southwestern	82,805	82,098	73,671
Total Western Districts	417,640	398,681	370,661
Total All Roads	1,078,695	1,033,843	1,012,585
Commodities			
Grain and Grain Products	64,699	55,233	48,131
Live Stock	22,855	23,239	24,919
Coal	154,502	151,454	150,402
Coke	11,559	8,755	9,924
Forest Products	66,698	64,702	68,034
Ore	79,317	64,498	64,287
Merchandise L. C. L.	257,517	255,702	256,385
Miscellaneous	421,548	410,260	390,503
July 20	1,078,695	1,033,843	1,012,585
July 13	1,064,632	1,024,925	1,017,394
July 6	908,832	850,947	839,085
June 29	1,095,724	1,003,699	1,021,438
June 22	1,069,046	987,360	1,018,060
Cumulative total, 29 weeks	28,649,097	27,371,488	28,390,104

The freight car surplus for the period ended July 15 averaged 211,165 cars, a decrease of 6,857 cars as compared with the preceding week. This included 103,003 box cars, 62,459 coal cars, 25,915 stock cars and 13,640 refrigerator cars.

Car Loading in Canada

Revenue car loading at stations in Canada for the week ended July 20 totalled 71,831 cars, a decrease of 1,283 cars from the previous week and an increase of 2,318 cars over the same week last year.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
July 20, 1929	71,831	37,911
July 13, 1929	73,114	36,267
July 6, 1929	63,587	36,264
July 21, 1928	69,513	37,652
Cumulative Totals for Canada		
July 20, 1929	1,915,070	1,215,844
July 21, 1928	1,862,640	1,131,379
July 23, 1927	1,756,602	1,100,570

EMPLOYEES OF THE MISSOURI & NORTH ARKANSAS have recently entered a group insurance plan under a policy issued by the Prudential Insurance Company of America. The total amount involved is $921,000, covering 635 lives. Participants are insured in amounts ranging from $1,000 to $10,000. The policy is of the contributory type, the workers paying a part of the premium and the railway company assuming the remainder of the expense. The employee group also is covered by disability and accidental death and dismemberment insurance.

Effect of O'Fallon Decision on Valuation and Rate-Making*

Gives railroads same protection as other property—Probable effects on recapture and rate-making—Other factors more important in fixing rates

By Leslie Craven

Counsel, Western Group, Presidents' Conference Committee on Federal Valuation of Railroads

BRIEFLY, the issue of the O'Fallon case was this: The Transportation Act required that the O'Fallon pay the government half of its earnings over six per cent of the present actual value of its property. The Interstate Commerce Commission, instead of determining that present value, determined an approximation of the original cost. The economic problem involved by the case, then, is simple. It is investment as against present value, and it centers about the change made by the war in the purchasing power of the dollar.

The dollar has no fixed standard of value. Suppose we converted a million dollars worth of staple goods into money and used it to build a railroad, and then that the war came along and cut in half the value and purchasing power of money. Our real sacrifice was the capital goods converted into a railroad, through money as a mere medium of exchange. Those capital goods after the war can be no longer represented by the original number of dollars we invested; because the dollar has been changed. Calling the dollar by a new name would eliminate the confusion. It would now take twice as many of these new dollars to create the same property. Consequently, if our return on the railroad is now restricted to six per cent on the number of dollars which we originally invested, we do not obtain a return on our real investment, but on only half of it.

The economic situation just explained underlies a long line of decisions of the United States Supreme Court, the first of which was over thirty years ago. The law is not at all new. The railroad owners had built railroads back in the 70's, when dollars were of low purchasing power and when it took more of them to produce a railroad. Prices then rapidly fell until 1893, and much less money would produce the same property. The railroads tried to get a return then upon the larger number of poorer dollars that they had invested. The courts saw that this was unjust and held that the *value* of the property measured in present day dollars must be the basis of regulation, and not the original investment. This law, declared in the case of *Smythe v. Ames*, in 1898, was then rigorously enforced against the utilities, who vainly endeavored to protect their investments, but were forced to accept a return based on the lower present value.

Then the tables turned. Costs went up. The various regulatory commissions found that the present value was higher than the original cost. They now became insistent advocates of the original cost theory. In the O'Fallon case the Interstate Commerce Commission, encouraged by a recent strong dissenting opinion of Mr. Justice Brandeis, made an effort to persuade the Supreme Court that the present *value* rule was unsound. There was no doubt as to what the law was; it had been repeatedly declared by the Supreme Court since 1898 and clearly affirmed in a number of cases even since the war when prices had greatly increased. There was no doubt as to what Congress had ordered the commission to do. In plain language in the Transportation Act, it ordered the commission to determine the *"value"* of these railroads in accordance with "the law of the land." The commission challenged the soundness of the reasoning of the Supreme Court in declaring the law, and, in effect, the wisdom of Congress in incorporating the law into the Transportation Act. But the court in the O'Fallon decision has held in plain terms that the prudent investment cannot be substituted for the true value of the property, and that, in the determination of that value, proper consideration must be given to the present day construction costs.

It would be impossible here to give accurate statistics regarding the effect of the O'Fallon decision upon the total valuation figures of the railroads of the country. The valuation work of the commission, as of the pre-war dates of valuation, fully justified the carriers' investment. The ghost of over-capitalization was forever laid. Railroad property, other than land, has increased in cost about 75 per cent. above the pre-war level. Since 1921, a relatively level plateau of costs has existed. There is no indication of prices falling. The economic authorities forecast no lowering of price levels. Inasmuch, however, as a large part of the railroad property is in land, which has not increased in value as other property has and because a certain part of the investment was made in the peak years of 1919 and 1920, since which there has been a lowering of price levels, a factor of about 40 instead of about 75 is a composite percentage fairly reflecting the full effect of the increase of costs and values on railroad property as a whole.

Effects on Recapture

The important question of course is what will be the effect of the decision upon the railroads? The Transportation act of 1920 makes the valuation important in two ways: Value is the basis of the recapture of earnings, and of the making of group rates. Speaking first as to the recapture: The court has not held that the railroads must always be valued on the basis of their

* From an address delivered before the Traffic Club of Chicago on July 10.

full present day construction cost. The exact weight to be given to present costs was not decided. The *commission's* order was attacked on the ground that it was based on an error of law in that the commission, instead of finding the true value of the property as the statute required, found a sum which was its best approximation of the carriers' investment. The court sustained this ground of attack,—the legal error in not finding the actual value, and did not have before it the weight which should have been given to reproduction costs, had they been considered in finding actual value.

Some people have interpreted the O'Fallon decision as intending to leave the power in the commission itself to decide, without restraint, what, if any, effect shall be given to present day costs, and to disregard them, if it pleases. I believe that view is mistaken. In the determination of the *present* value it is the *present* costs obviously that must be considered, not the obsolete costs of an obsolete price level. Consequently, while the court here was not required to pass on the question of weight, its decision follows and quotes as an authority its recent decision in the Indianapolis Water case, where the court happened to deal with the issue as one of fact and invalidated an order where the Indiana Commission professed to "consider" reproduction cost, but failed to give it predominating weight. Now that the commission's proposal that the railroads be valued on a pre-war basis has been definitely rejected, it is not to be expected, and certainly not assumed, that the commission will endeavor to get the same result by avoiding the substance of the law but with a colorful pretense at obeying it.

While any opinion about issues not yet definitely settled is only opinion, it seems clear as a consequence that under the present status of the law in any case involving the recapture of earnings, the principles established should not ordinarily justify a value less than the present day reproduction value. Few railroads will suffer recapture in very substantial sums under such circumstances. There are few lines, and almost none of any size, which, except at rare intervals, earn more than six per cent on a properly determined present value.

It has been seriously said that a greatly increased value for all the railroads would require great rate increases to the great danger of business. This suggestion has certain spectacular aspects of popular appeal which the commission itself could not resist. For in its O'Fallon decision, in arguing against determining the true value of the railroad property, the commission contended with emphasis and at length that rates made on the basis of the actual value of the property would have a disastrous effect upon the business and commercial world, would create conditions which would react disastrously on all industry, and would cause violent fluctuations in the condition of the carriers themselves ranging from poverty to prosperity.

Valuation and Rate Making

There are three major elements which control the making of rates. Their relative importance varies depending on conditions; any one of them may or may not be controlling at any time. The first is the right of the railroad to get a return on the value of its property. But this depends upon whether two other elements are favorable: One is whether business is sufficiently prosperous that the traffic will move under such charges as a return on the value requires. The other, whether the railroads' competitive relationships are such that they will permit themselves to obtain the return to which they are lawfully entitled. Either of these two elements may defeat the valuation right, and during recent years they actually have done so. For an example, take the western roads: During the last few years there has been depression in certain basic western industries. That depression put a definite limit on what the traffic would bear. Under such circumstances, the valuation of property had little to do with rate making. The rule of law declared by a court will not override economic considerations. No judicial decree will make the economic waters flow up hill. We valuation lawyers have not yet discovered a valuation theory which will increase the traffic on a thin line.

Coming now to the element of competition: During recent years the electric light, gas and telephone utilities, speaking generally, have enjoyed a prosperity without parallel in their history, under rate structures protected by the rule that there must be a fair return on the present value of their property. Those utilities are monopolies; the railroads have a highly competitive business. The rule that the carriers are entitled to a fair return on the value of their property does not insure that the carriers may not themselves, as the result of competitive practices, give up the opportunity of obtaining that return. Two railroads, operating in a field affording sufficient traffic to enable a return on the reproduction cost value of each, by entering into severe competition, by reducing rates and affording more expensive service than the traffic would justify, might so reduce their earnings that the return would be entirely inadequate.

Competition may, then, prevent the roads as a whole, or individually, from earning the rate prescribed by such legislation as the Transportation act, or theoretically guaranteed by the Constitution.

Now, in stating these inherencies of the railroad business, I do not mean that the O'Fallon decision avails the carriers nothing in the rate situation. The court now decides that for rate making purposes the value used must be the present value reflecting the present day dollars. This inevitably stabilizes the situation because hereafter the adequacy of railroad rates must be judged by that standard and the rate reductions will have to be scrutinized from the viewpoint of the substantive law thus declared. The commission is now legally bound to stop the whittling down of rates, where the carriers are not earning a proper return and where the traffic will permit better earnings. The legal rule, as explained, is subject to the limitations inherent in whether the prosperity of the country is such as to permit traffic to move at such rates as will pay a return on such a valuation basis. We do not know now what the conditions will be. But when conditions permit, it is clear that as a matter of right the railroads, under this decision, are entitled to better earnings than they have ever had and cannot be deprived through lawful regulation of the better earnings that naturally will accrue whether under heavier traffic, greater economy or better rates. It may not require higher rates because rates are only one element in the profitability of traffic. Whether the carriers will permit themselves to secure those earnings under competitive conditions is largely a matter of their own policy.

Commission Form of Government

As civilization becomes more complex and human relationships more interdependent, there is a greater necessity for a more complete regulation by law of the rights and duties of individuals. The commission form of government is a consequence. The last few years have seen a further concentration of authority in bureaus and commissions at Washington,—a greater trans-

fer of power from courts to commissions. The development of right conceptions of the authority of these commissions, and a right development of the law pertaining to supervision of them by the courts is, consequently, of great importance.

In this particular case, Congress had definitely required that the commission follow a prescribed course of action. It was not authorized to recapture any earnings excepting as calculated on the basis of the actual present *"value"* of the O'Fallon determined in accordance with "the law of the land." The commission, however, concluded that the Supreme Court had been in error in establishing the true present value of the property as the basis of regulation. It challenged the economic wisdom of the rule. In effect it denied that Congress had been wise in prescribing this fundamental law as the basis of the Transportation Act. Consequently, it disregarded both Congress and the courts, and determined instead of the value, the supposed investment in the property, which was very substantially less than what Congress had prescribed.

The commission, the government, and the National Conference on Valuation (a conference organized by the late Senator LaFollette and people of similar political views), stoutly defended this course before the Supreme Court, and asserted the commission's right to exercise legislative powers practically free from constitutional and statutory limitations as administered by the courts. It was urged that railroad property had no value independent of what the commission had seen fit to give it, and that the courts were not empowered to interfere with the commission's determination and to substitute their judgment. Objection was made to any attempt on the part of the courts to coerce the commission in its legislative discretion by the establishment of definite rules of law, it being said that to do so is simply to attempt to destroy the substance of legislative power. It was suggested that the court should not interfere with the commission in the exercise of its discretion for the simple reason that it is a permanent commission of recognized ability, of long experience and tested responsibility, and had presumptively reached a conclusion which was a proper expression of public policy. The commission sought to escape the consequence of having followed the prudent investment theory by claiming that its determination was a "fair value for rate making purposes," a thing which it said was not actual value at all, but a thing so indefinite that it cannot be "defined" but can only be "described." It was described as "what is fair." Since "what is fair" is all things to all men, this criterion is actually no test. A change in the mere personnel of the commission would change the basic law of the land. "What is fair" is also different things to the same men at different times. Consequently under this conception of value, the commission would be free in times of high prices, as at present, to use the original cost as "what is fair" now, and free to use the reproduction cost when prices come down and it will produce a lower result. It was further urged that one who devotes his property to public utility service loses all real value therein, and that the property then has only that value which the legislative authority may see fit in its wisdom to recognize. It was denied that there are any rights of private property in the railroads.

The Court gave a terse, plain answer:

"In the exercise of *its* proper function this court has declared the law of the land concerning valuations for rate making purposes. The commission disregarded the approved rule and has thereby failed to discharge the definite duty imposed by Congress. Unfortunately, proper heed was denied the timely admonition of the minority—"the function of this commission is not to act as an arbiter in economics, but as an agency of Congress, to apply the law of the land to facts developed of record in matters committed by Congress to our jurisdiction."

Whether the more important work of society shall be done by society itself or by private individuals, is a question about which there may be legitimate difference of opinion. But in this country there is now no great controversy about it. We are definitely proceeding on the theory that private enterprise in industry should be encouraged and that the government should supervise the rights and duties of its citizens who engage in carrying on the nation's industry, rather than go into business in competition with them. So long as we proceed on that basis, all should agree that an essential to the plan is that if private capital is to carry on work for the public, the rights of the private individual and of the public must be recognized and preserved, according to some fundamental and well understood law. Thus, it was inevitable that the court would not sustain the proposals of the railroad opponents, that all rights of private property in the railroads be broken down, and that a commission be regarded as having the power to proceed in disregard of the statute which authorized its action, and without that judicial restraint essential to preserving carefully the rights of the railroads and the public as declared by the law. When we reach the place where private property is to be kept in public service without insurance of the rights guaranteed by law, and commissions are free to regulate such businesses according to the individual views of right held by the personnel happening at the time to comprise the commission, it will be time for us to take up government ownership.

Increased Traffic Handled with Less Equipment

WASHINGTON, D. C.

THE record freight traffic moved so far this year by the railroads has been handled with fewer freight cars and locomotives than they have had at any time since 1923, according to a statement issued by the Car Service Division of the American Railway Association.

Notwithstanding that fact, and the steady growth that has taken place in recent years in the industrial development of the nation, the railroads have been able to meet transportation requirements without car shortage except in a few isolated instances and then only of short duration. This achievement has been largely brought about by the steady increase in the capacity of freight cars and the power of locomotives, together with improved operating methods.

On July 1, this year, freight car ownership of the Class I railroads, excluding railroad controlled private refrigerator cars, totaled 2,266,069, a reduction of 98,603 cars under the greatest number ever owned in any one year, which was in September, 1925. Compared with July 1, 1928, the total ownership of Class I roads on July 1 this year was a decrease of 34,600.

Excluding railroad controlled private refrigerator cars, the average capacity of the freight cars owned by the Class I railroads on July 1 this year was 46.09 tons per car, compared with 43.10 tons in 1923. In the last seven years there has been a steady increase in the average capacity.

Class I railroads from January 1, 1923, to July 1, 1929, installed 751,723 new freight cars in service.

These cars have been largely of steel construction with increased carrying capacity compared with the older type of cars and their installation has enabled the railroads to retire much obsolete equipment, which not only was expensive to maintain, but also had a smaller carrying capacity.

The same situation that prevails in regard to freight cars also applies to ownership of locomotives by the Class I railroads, which on July 1, this year, had 57,912 locomotives. This was a reduction of 7,012 compared with the number on July 1, 1924. Compared with July 1 last year, the number of locomotives owned on that date in 1929 was a reduction of 2,182.

With the decline in the number of units owned, there has been a steady increase in the tractive power of the new locomotives installed by the railroads with the result that the average tractive power per locomotive is now 43,985 pounds, compared with 38,217 pounds seven years ago. Through this reduction in the number of locomotives owned, the railroads have been able to retire many obsolete locomotives, while the increased power of the locomotives now in use enables them to move heavier loads of freight than formerly.

Even in the face of the record traffic that has been carried so far this year, the railroads have never had less than 5,132 serviceable locomotives in storage, which could have been instantly placed in use if transportation requirements necessitated such action.

From January 1, 1923, to July 1, 1929, 14,079 new locomotives were placed in service, all of which have been of improved types, permitting greater utilization than ever before.

On July 1, 1923, the railroads had 11,450 locomotives, or 18 per cent of the number on line, in need of repair. Since that time there has been a steady improvement with the result that on July 1, this year, fewer locomotives were in need of repair than at any time in recent years, there having been only 7,453 or 13 per cent of the number on line despite the extremely heavy movement of freight traffic.

The figures given are shown in the report of the Car Service Division submitted at a meeting of the board of directors of the A. R. A. at Atlantic City on July 25. The report also included statements of progress as to heavier loading and empty mileage as follows:

"In the first five months of 1929 the Car Service Division through its field force has made in excess of 1,000 original checks of loading by various industries with a view to increasing the average tons per car. These industries have varied alphabetically from asbestos waste to zinc oxide and covering almost the entire classification of commodities carried by rail. Increases in tons per car have been secured in all of the commodities investigated. Not from all shippers and to all receivers but in sufficient volume to justify continuing the campaign for heavier loading.

"The approach to the problem of heavier loading has not been so much on the basis of car conservation as it has on the premise that heavier loading is of mutual benefit to shipper, receiver and carrier. At the commencement of our endeavors a booklet setting forth these benefits was prepared as shown in our report to the board last November. Through the regional boards and the railroads 160 thousand copies were distributed to the shipping and receiving public. One Western state department of agriculture was sufficiently impressed with the value of the booklet that it requested 15,000 copies to be distributed to grain shippers in that state. A poster for the grain trade emphasizing the change from 10 per cent above nominal capacity to load limit was issued last year, and another such bulletin, emphasizing the same point, and calling attention to better methods of grain loading is just out, 64,000 copies having already been distributed. Grain dealers have shown great interest in this bulletin and have undertaken its distribution to the trade."

"The percentage of empty mileage for the year 1928 was 37.1. This is the same figure as for 1927. Considering that there has during 1928 been an increasing proportion of traffic handled in tank cars and open top cars, the figure for 1928 reflects a slight improvement over that of 1927.

"During 1928 the Car Service Division carried on a special series of on-the-ground checks at freight houses and transfers in different districts to determine the extent to which roads were using their own box cars for off line loading at the time foreign cars were equally available when the railroad forces were themselves responsible for this loading. Repeat checks of the same kind were made after a period of a few weeks. Much good was done by these checks, for they developed situations which were susceptible to immediate and permanent improvement without added expense of any sort.

"The situation with respect to team tracks and at industries is somewhat different. The question of rendering service has been given first place and unless the proper foreign car was immediately available and properly placed the shipper has not been required to wait, or the railroad to assume the necessary expense for a special switch. This question of "service" has therefore been responsible for a somewhat increased loading of system cars off line during periods of surplus.

"This off line loading of system box cars in parallel with foreign cars forwarded empty in home route, in the direction of loaded traffic, is a source of empty mileage requiring constant study for correction.

"Further improvements in percentages of empty mileage are possible by:

1. Increased supervision given to box car handling to substitute proper foreign for system cars for off line loading.
2. Increasing load per car to reduce number of cars moving into consuming territory.
3. Finding a load for the car of indirect connection ownership instead of starting it empty on a circuitous home route record.

"It will be increasingly difficult to show a reduction in percentage of empty mileage as a whole because of the increasing use of special types of cars such as tanks, refrigerators and other classes for which there is loading only in one direction. It may be considered gain if percentage is held where it now is.

* * *

The Lackawanna's New Passenger Station at Paterson, N. J.

Important Factors in Obtaining Fuel Economy

Front end blowers and grates must be of the proper design —Operating and mechanical department officers must co-operate

By J. E. Bjorkholm

Assistant superintendent motive power, Chicago, Milwaukee, St. Paul & Pacific, Milwaukee

WHILE, like most carriers, the Milwaukee has been fortunate to record a consistent downward trend in fuel consumption during the past several years, the year recently closed was particularly satisfactory in this respect. Thus, in freight service the reduction in fuel consumption when compared with the previous year was 8 lb. per thousand gross-ton-miles; in passenger service 0.9 lb. per passenger-car-mile; in yard service 7.1 lb. per yard-locomotive-mile; and in the stationary power plants the reduction amounted to approximately 35,000 tons.

Comparing the amount of business handled during 1928 with that in 1927, and the fuel consumption per unit measure for the two years, the amount of coal saved in the aggregate amounted to 270,213 tons.

The item of fuel saving in stationary plants was particularly gratifying because considerable fuel inferior to that burnt in 1927 was used; had the coal been of the same quality, this reduction would have been considerably greater.

In the early part of the year a considerable quantity of coal was in storage and, being anxious to pick up every pound possible, considerable dirt was gathered with the coal, something difficult to guard against where storage places with a hard bottom are not available. Not desiring to invite engine failures because of the lack of steam, usually inevitable when coal of this character is burned in locomotives, the coal picked up nearest to the ground was consigned to stationary power plants, with the result that not a single steam locomotive or stoker failure was recorded while burning a considerable amount of storage coal.

An Economical Front End Blower

An item which contributed more than anything else to this satisfactory locomotive performance was the adoption in the late part of 1927 of an economical front-end blower. Unlike most types of front-end blowers it consumes very little steam and at the same time renders a good account of itself. Since the steam opening in this blower is only $\frac{3}{8}$ in., except for the larger engines where a steam orifice of $\frac{1}{16}$ in. in diameter is used, it naturally follows that the demand on the enginehouse blower line is reduced considerably. The amount of steam used through the enginehouse blower line for the purpose of furnishing steam to front end-blowers is much greater than is ordinarily appreciated. A steam flow meter used on this line for a few days usually shows a steam consumption that is quite a revelation.

Altogether too often the front-end blower is looked upon as a sort of hypodermic called into use to overcome cases of careless firing, leaky flues, etc., or whenever the fireman permits the steam pressure to fall lower than good practice ought to permit. Regardless of any opinion to the contrary, the use of the front-end blower, when not necessary, is one of the greatest sources of waste in locomotive firing practice, although the least appreciated.

The reduction in switching service of 7.1 lb. of coal per yard-locomotive-mile in the aggregate amounted to approximately 43,000 tons of coal. No other fuel saving device was introduced during the year, and as the yard service was speeded up considerably, and the switch engines handled more cars per hour than formerly—thus placing a greater demand on the locomotives—the reduction obtained in this service is considered quite satisfactory.

The almost constant use of the front-end blower for the purpose of aiding smoke abatement in districts where smoke ordinances govern, adds considerably to the consumption of fuel; a front-end blower with a restricted steam orifice is an important factor in promoting fuel economy on engines operating under these conditions, be they engaged in either yard or road service.

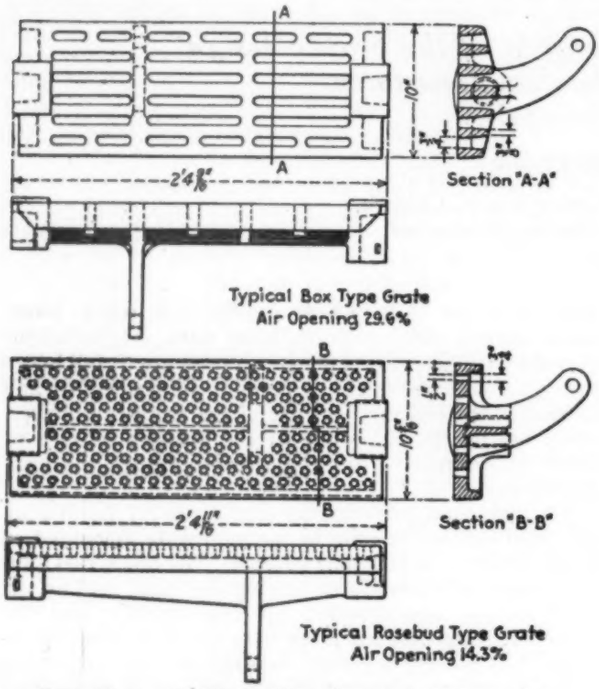
Many Responsible for Fuel Conservation

For freight service a number of superheaters were added during the year, due to modernizing some of our older locomotives. However, the number added was small, and, while the introduction of additional superheaters aided in reducing the amount of fuel burned the major portion of the savings is attributable to other factors. One of these was the appreciation of operating and mechanical officers in general that the matter of fuel performance is a problem that does not rest with the fuel organization alone but rests first of all with the operating officers, second with the mechanical department officers responsible for the maintenance of the locomotives, and last, but not least, with every mother's son on the railroad having anything to do with the burning of fuel—directly or indirectly—the enginemen, of course, taking a most prominent part.

The fuel organization as generally constituted on most roads is able only to formulate policies and point out the way. It usually is composed of only a few men and, regardless of their qualifications and enthusiasm, little can be accomplished unless all division officers having anything to do with the operation of trains or locomotives are called upon to consider the problem of fuel economy one of their most important duties.

A good deal has been said in recent years about the

matter of improving fuel performance to a larger degree than so far has been done. It has been discussed back and forth at conventions; it has been the subject at every fuel meeting on every railroad in the country and volumes have been written on the subject. I venture the statement that not until the chief train dispatcher is called upon to explain a bad fuel performance in the same manner that he is called upon to explain a declining train load or delays to trains, will this important matter receive the attention it deserves. There is considerable money to be saved in the wise use of fuel. Division officers, by making the problem of fuel economy one of their daily duties, not content with the opinion that this is something coming solely within the province of the fuel supervisors to be worked out with enginemen and firemen will find that the reduction in operating costs due to reduced fuel consumption is quite a factor in promoting a low division operating cost. It is a subject of such importance that it should be treated with the greatest consideration by those in whom lies the power to control it.



Two Types of Grates Experimented with on the Milwaukee Road

It is safe to say that there is still considerable to be learned about the proper burning of coal. It is an old saying that: "Difference of opinion makes horse racing" and fortunately this difference of opinion appears in the matter of the proper and most economical burning of coal. I say fortunately, because through this difference of opinion many experiments are being tried, which eventually will throw more light on the problem.

Locomotive Grates an Important Factor

In this difference of opinion, the question of what constitutes the most economical all-round locomotive grate takes quite a prominent part. The grate most commonly used is either the so-called box or table grate usually 9 to 10 in. in width, or the finger grate. In either type the air opening, or rather the open area, in the grade bar is something like 30 per cent or more.

On our road, the 10 in. wide table grate with longitudinal openings aggregating about 30 per cent air opening has been the standard for some time. The principal advantage of this grate is that it has aided materially in keeping a clean fire in that it permits shaking through most of the incombustible matter, an important item particularly on extended runs. However, a grate of this kind is frequently wasteful in that it not only permits, but often encourages careless firing, and combustible matter is frequently shaken into the ashpan. Besides, a certain loss is experienced when building the fire in that in the process of bedding down the grates with coal a certain amount passes through the grates into the ashpan. This grate loss is frequently looked upon as unimportant, but when we stop to consider that an average of something like 60 lb. of coal may find its way into the ashpan during the bedding down process, the aggregate loss becomes of respectable proportions. On a railroad where approximately 1,000 fires may be built daily, the loss from this source alone would amount to something like from 11,000 to 12,000 tons of coal annually.

During the past three years we have been making some very thorough experiments with a 10-in. wide table grate with ½ in. diameter perforations which give a total open grate area of approximately 16 per cent. It has been found that these grates answer all reasonable demands of a satisfactory grate except in the territory where Iowa coal is burned. In this territory we have found that because of the peculiar clinkers usually characteristic of this coal, these grates have not in all cases proven satisfactory. However, our 4-6-2 locomotives running in passenger service between Omaha, Neb., and Savanna, Ill., a continuous run of 354 miles, have not experienced any trouble resulting in delays from lack of steam.

In the districts where coal from the Montana fields or Indiana fields is used, these grates have proven very satisfactory. We are now experimenting to find a grate entirely satisfactory for Iowa coal, and while we have not as yet proceeded far enough to obtain definite results, we are in hopes that the round-hole grate with somewhat larger openings will prove satisfactory. It is true that, so far as promoting a free steaming engine is concerned, the former table grate was in every respect satisfactory, but it was not the most economical grate, and we are reluctant to continue its use.

One of the factors to which railroads in general will have to look for further fuel economies is in the utilization of power to the greatest possible extent through the medium of longer continuous locomotive runs which reduce expensive standby losses around terminals. Sometimes these losses become particularly expensive where enginehouse facilities are inadequate to permit housing all locomotives.

To make extended runs profitable, however, they must be extended continuous runs in fact, and not in name only. Thus, to start a locomotive headed in a certain direction out of an initial terminal and expect it to continue in the same direction, regardless of the time element or delays at intermediate terminals or subterminals, is not running the engines over long continuous runs and does not produce the economy that is possible through the arrangement of extended runs wherever operating conditions are such that they can be properly arranged. In this the operating and mechanical officers have problems to work out that, if successfully solved, will bring about economical results, not only in the matter of fuel economy, but in locomotive maintenance cost, and in the matter of investments, because of fewer locomotives needed in service.

Physical Examination of Employees

Frank V. Whiting tells claim agents of satisfactory results secured on the New York Central

FRANK V. WHITING, general claims attorney, New York Central Lines, in an address delivered before the convention of the Association of Railway Claim Agents at Detroit on June 20, strongly advocated the extension of the practice of examining employees periodically to determine the state of their general health. Such a plan in effect on the New York Central, he showed, had detected many cases of dangerous hidden illness, which, undetected, might have led to man-failure resulting in collision, derailment or other disaster. He also quoted figures to show that, of the employees found in a dangerous state of health, all but a small percentage were brought back to normal by proper treatment.

"It is assumed," said Mr. Whiting, "that all the railroads in this country are making complete physical examinations of applicants for employment and upon promotion in the train yard, engine and signal service, and in addition the customary periodic examination for visual acuity, color perception and hearing. But few roads are examining applicants for employment in other occupations, although it is just as important to examine applicants for service in roundhouses, shops and maintenance of way. It would be of lasting benefit to the railroad service if all applicants for employment in any occupation were given a service entrance examination, accepting only such as are found to be physically fit for the positions sought. For years employees of the New York Central Lines who have been disabled by reason of accident or disease which predisposes them to sudden incapacity, or whose sight, color sense or hearing may have thereby become affected, and those who are off duty for a period in excess of six months, have been required to pass a satisfactory physical examination before resuming duty. My remarks on this subject will be confined to periodic physical examinations of employees without reference to the customary examinations for vision, color and hearing.

"Dr. W. L. Hartman, chief surgeon of the Michigan Central, was the first to call our attention to the necessity for making physical examinations of engineers—some twelve years ago. We early realized that certain train collisions, supposedly the fault of the engineman, were not necessarily the sole result of inattention or negligence, but that in some instances the underlying accountable cause was a mental or physical impairment which motivated the act of omission or commission. On one of our system roads during a period of three years we found it necessary to take 25 enginemen out of the service (21 of whom suffered from paresis and high blood pressure) and place them on a disability pension. Most of these cases came to the attention of our chief surgeon by reason of the men having dizzy spells or on account of noticeable mental deficiencies."

Mr. Whiting then referred to the action of the railroads of Massachusetts in 1923, when an engineman ignored a signal because (supposedly) he had some sudden mental defect. With the approval of the Public Service Commission of the state, it was decided to have physical examinations of enginemen always when employed or promoted, always within three years; and after the age of 55, once every year. The decision of the Supreme Court of the United States in October, 1928, case No. 454, where Joe Rock by deceit secured employment on the Minneapolis, St. Paul & Sault Ste. Marie, held that the railroad had a right to require applicants for work to submit to appropriate physical examinations and that the deception (securing another man to take his place before the surgeon) was directly opposed to the public interest; and it was held that, because of the fraud, the relation of employer and employee did not exist. This decision fully sustained the right of the railroad to secure evidence of the physical fitness of an employee or prospective employee.

The United States Railroad Administration in 1920 took action requiring physical examinations of men holding positions in any manner connected with the operation of trains. In 1921, the Medical & Surgical Section of the American Railway Association, in circular No. 2543, prescribed, as recommended practice, periodic examinations under a complete set of regulations and requirements.

The New York Central Lines in March, 1921, began a comprehensive study of the question of examination, particularly of enginemen, the progress made, however, being slow because of reluctance on the part of individual employees; but in 1925, the two brotherhoods, enginemen and firemen, agreed to the policy of the road, a mutual declaration of purpose being adopted. This declaration set forth the importance of discovering incipient disease and of the great value to the individual's health of regular physical examinations.

"The company has now extended its examinations" said Mr. Whiting, "not only to all men engaged in service incidental to the operation of trains, such as telegraph operators, air brake, steam heat, car and engine inspectors, bridge, building and track foremen, track walkers, crossing watchmen, as well as police department officers and patrolmen, stewards and waiters in the dining service, but also captains, mates, pilots, engineers and oilers in the marine service. These examinations are made every three years of men under 50 years of age, every two years of those 50 and under 55, and annually of men 55 and over, and at more frequent intervals if required by law or otherwise. Those who are found to have actual or suspected physical defects are examined at such intervals as may be determined by the medical staff.

"It was considered impracticable to adopt specific causes for disqualification from employment temporarily or permanently, and as the objective was to ascertain what, if any, physical defects or diseases existed and to apprise employees of their condition to the end that they could take necessary treatment to restore their health, we adopted the following rules for the guidance of the examining surgeons:

'In view of the increased value of the service of an employee because of his experience and familiarity with his duties and in order to prevent undue hardships to an employee in service, he will not be removed from the service temporarily or permanently unless the disability found on re-examination or examination for promotion is such as to interfere with the proper performance of his duties and with the safety of himself or others.

'The company surgeon who makes the examination and finds physical defects requiring treatment, shall advise the employee to consult a physician of his own selection and upon request of such physician, will furnish him with a report of his findings. The physician selected will be requested to make a report of treatment rendered and progress of the patient from time to time.

'An employee shall be temporarily relieved from service when well-defined mental or physical impairment is indicated which incapacitates him from properly performing his duties and when such impairment can be benefited by treatment or rest, so that his economic life may be prolonged. He will be restored to service when, in the opinion of the chief surgeon, the cause of disabilty has been corrected or improved to such an extent as will warrant return to service.

'An employee shall be permanently relieved from service who has a physical or mental impairment, when, after a reasonable period of medical or surgical treatment it has been determined that such impairment cannot be materially improved or corrected and he is thereby prevented from properly performing his duties.'"

In 1926, an investigation by the American Railway Association showed that only six Class I railroads were making regular physical examinations of all classes of train service men and only 41 such roads were doing enough in this direction to be classified. It was found that on most roads examinations were not made with sufficient frequency, and Mr. Whiting suggests that the Medical & Surgical Section should give the subject further consideration.

Examinations on the New York Central

Reports presented before the Medical & Surgical Section at Quebec, in 1928, and at White Sulphur Springs this year summarize results of examinations on the New York Central, the Chicago & North Western and the Illinois Central. These three roads together had examined many thousand men and the speaker gave brief abstracts of the percentages of defectives found. On the New York Central Lines in a period of three years and five months, ending with December, 1928, about 40,000 men were examined including 6,126 (15.31 per cent) enginemen and motormen, 6,149 (15.37 per cent) firemen, 5,300 (13.25 per cent) conductors and yard foremen, 11,762 (29.41 per cent) trainmen, 10,663 (26.66 per cent) other classes.

Continuing, Mr. Whiting said: "Sixty-nine per cent of the men were found to be in good physical condition. In all, 12,222 (31 per cent) were found to have physical defects or diseases requiring treatment but were continued in active service and placed under observation. It was necessary in some instances to place some of the men whose impairment was serious in restricted service. Improvement under treatment was such that by the end of December, 1928, 7,697 (63 per cent) of those under observation had been released, leaving 4,525 (37 per cent) still under observation. It was found necessary to temporarily suspend from active service but 265 (0.66 per cent), and to retire permanently only 122 (0.30 per cent).

The percentages of the number of defectives found as compared with the total number employed cannot be given but the paper presents a table showing the numbers found of the most prevalent diseases. Of the total examinations (78,691) 21 individuals had epilepsy, 6 cerebro-spinal syphilis, 56 locomotor ataxia, 15 general paresis and 13 angina pectoris.

Reporting on 5,393 employees examined on one road, in 1925, Mr. Whiting, to show the beneficial results from thorough examinations said: "Two thousand seven hundred thirty two (51 per cent) were found with disabilities sufficiently serious to shorten their economic lives from five to fifteen years. A fair average would be eight and one-half years, and approximately 95 per cent of these men did not realize the presence of the defects; at least they had taken no steps to remedy the conditions if they did know of them. By advising these men of their condition and the proper treatment to pursue, eventually 2,434 (89 per cent) were checked off from our improvement record as physically fit, leaving in April, of this year, but 298 (11 per cent) under observation. Upon re-examination in 1928 of the three-year men on this road, we found 672 new cases which shows clearly what can develop in the interim between examinations. At the end of 1928 out of the total of 3,404 men in whom disabilities were discovered, 2,721 (80 per cent) were restored to a reasonably good physical condition, leaving 683 (20 per cent) under observation at the present time. A large number of Wassermanns were made. We found 10 per cent positive. Under proper treatment 53 per cent of these at the present time show a negative Wassermann and a number of the remainder have improved."

While it may be said that these examinations appeared too favorable for belief, the speaker explained that the subject of examinations was approached sympathetically, not with the thought of putting men out of the service but of helping them to adopt proper treatment for physical improvement. The New York Central Lines now retire disabled men permanently on pension; and since 1925, considerable numbers, especially enginemen and conductors, voluntarily retire at the age of 65, on a service pension.

Employer and Employee

Concerning the attitude of an employer toward employees in this matter, Mr. Whiting said:

"In dealing with the problem of safety years ago, aside from the correction of physical conditions, we sought to control the conduct of the employees through discipline. It is questionable to what extent accidents were prevented by such action. An employee who was to blame for injuring himself was never disciplined, but he had to bear the pain and suffering and loss of time resulting therefrom. Then we adopted a plan of education in an effort to correct the errors of humanity and reduce accidents. There are all sorts of ways to educate men to exercise care, but the best way is by example. You can talk until doomsday without making much of an impression on some men, but the constant setting forth of a good example availeth much. While accidents have been materially reduced in volume by education and example, it is a fact that regardless of teachings and notwithstanding the desire of men to avoid injury to themselves or others, there yet remain some accidents that we have been unable to eliminate through the existing methods * * *.

"When we buy locomotives, cars, rails and machinery, we see to it through careful supervision and inspection that the material and equipment is delivered to us in first class physical condition, unimpaired. * * * Why should we not go back to first principles with regard to defects in physical properties and apply them to human beings? In a word, why not examine applicants for employment and take only those physically fit into the service? Why not inspect or examine employees from time to time to ascertain their physical and mental defects and when found, see that they are repaired?

Why not exercise care and take reasonable precautions to keep employees in good health?

"Every man, whether working for himself or for others, in his own interest should keep himself physically fit and in good health to the end that he may not only lead a productive and prosperous life, but also that he may live that life more satisfactorily. By so doing his contribution to the economic life of society generally will be increased to a marked degree and reflected largely in the prosperity of the individual.

"The average person will not, of his own accord, either take a physical examination or seek the services of a physician unless he has a condition which he feels is serious and that home remedies will not cure. Prior to the inauguration of these examinations it was not uncommon for an employee in train service to drop dead on duty. Since we started the examinations we have no knowledge that any train accident was directly traceable to the physical unfitness of these men.

"The result secured should be sufficient to warrant all railroads in adopting the measures referred to and to diligently pursue and amplify them.

"It was recently suggested by a member of this association that Congress should be asked to enact a law compelling periodic physical examinations of employees. This should be unnecessary. We have the opinion of the Supreme Court of the United States in the Rock case in which the right and duty of the railroad company to make the examinations is clearly expressed. We have also the recommendation of the Medical & Surgical Section of the American Railway Association, approved by its membership; and further, we have, as shown in the foregoing, affirmative action taken by many railroads in the last two years which is a decided forward movement * * * ."

Hearing on Control of B. R. & P.

WASHINGTON, D. C.

THE hearing on the application of the Baltimore & Ohio for authority to acquire control of the Buffalo, Rochester & Pittsburgh, before C. V. Burnside, assistant director of the Bureau of Finance of the Interstate Commerce Commission, was concluded on July 25 with a statement by L. F. Loree, president of the Delaware & Hudson, protesting vigorously against separate action on this proposal prior to a consideration of the general question of the grouping of eastern roads involved in more general applications already on file with the commisson. If the B. R. & P. is to be disposed of separately he said, it should be assigned to the D. & H. and he had been authorized to make a cash offer to take over the stock now under contract to the Baltimore & Ohio, at cost plus carrying charges. He pointed out that the commission in denying the application of the D. & H. for authority to lease the B. R. & P. had done so on the ground that the record was not sufficiently comprehensive to warrant the practically permanent assignment of such important lines as parts of the same system.

Counsel for the D. & H. proposed an adjournment of the hearing until October but an agreement was reached among counsel by which it was stipulated that parts of the record of the former hearings, when the D. & H. was seeking authority to acquire the road might be considered as in the record in this case. The Pennsylvania, Wabash and Pittsburgh & West Virginia, which had intervened in the case, offered no witnesses.

Following the testimony on behalf of the Baltimore & Ohio, reported briefly in last week's issue, T. F. Brennan, vice-president of the B. R. & P., testified that the uncertainty as to the disposition of the road, which has prevailed ever since the issuance of the commission's tentative consolidation plan in 1921, was working to its serious disadvantage and he urged the commission to reach a prompt decision. He also endorsed the statements of the Baltimore & Ohio officers as to the advantages to result from the proposed combination of the two roads.

Fred Loeb, a real estate operator of Dubois, Pa., said the people of that section would welcome control of the B. R. & P. by the B. & O. as tending to increase its prosperity and that of the region served. Elisha Kane, president of the Mt. Jewett, Kinzua & Riterville, a short line connecting with the B. & O. and B. R. & P., urged that it be taken over by the B. & O. with the B. R. & P.

Mr. Loree, after outlining the importance of the territory served by the B. R. & P. and pointing out its importance as a carrier of coal and iron ore, said that the interests involved are so great and so vital that it would seem unsafe for the commission to deal with the B. & O. application independently. "To shoot in the dark now by granting the application of one railroad for the acquisition of one small but vital link in the transportation system of trunk line territory, without considering even the entire plan of that railroad, is so clearly not in the public interest as to require no comment," he said.

He pointed out that the "real business of the B. R. & P. is largely the handling of bituminous coal which moves northward in open-top cars," and said that this would in no way be helped by the addition of a movement of grain from Buffalo to Baltimore. However desirable the extension of its properties might be to the B. & O. he said, the interests of the public would not be served by acquisition by it of the B. R. & P. and competition between the two roads, both active and potential, would disappear.

Other points made by Mr. Loree were: that the linking of the B. & O. with the B. R. & P. was not a part of any plan proposed by Prof. Ripley; that it was not a part of the "star-chamber" plan submitted by the three large systems when they proposed a four-system plan for the eastern railroads; that it was no part of the tentative plan of the commission; and, that "it is distinctly hostile to the public interest involved in the necessary redistribution of coal and ore brought about and to be brought about by the diminution and exhaustion of present supplies."

"It is obviously antagonistic to the maintenance of competition," he said. "There is now both active and potential competition in the transportation of the more important commodities handled by the two roads. This is sought to be minimized by the B. & O. but largely on the ground of the control already exercised over the B. R. & P.

"There are pending before the commission plans for the consolidation of railroads which definitely bring before this body the effect on the public welfare of the formation of various railroad systems so as to maintain general competition and yet produce better service to the public. The only interest that is shown or appears here is the ambition of the B. & O."

In reply to a question as to whether if the D. & H. were allowed to acquire control of the B. R. & P. it would be willing to hold it free from any mortgage lien so that the commission might later dispose of it otherwise, if it desired, Mr. Loree said he would be willing to make such a recommendation to his directors.

Communications and Books

Handicapping the Dispatcher

CHICAGO.

TO THE EDITOR:

Referring to your editorial entitled "Gross Ton-Mile Education," appearing in the issue of May 11, page 1088, wherein the suggestion is made that train dispatchers should become better acquainted with the importance of raising the gross ton-miles per train-hour, I wish to call to your attention some of the things that handicap the train dispatcher in the production of efficiency, so far as speed is concerned. These observations are not set forth to ridicule or condemn the railroads that follow the practices cited, but merely to indicate the validity of my statement that constructive criticism should be countenanced from and by both employer and employee to correct existing evils or lack of prudent forethought.

The standard code of rules, in effect on practically every railroad, prescribes certain kinds of train orders, each one designed to meet special occasions. Every train dispatcher, I am sure, believes they are ample to fit his needs when issuing orders to move trains as expeditiously as possible. The handicap placed on the train dispatcher rests in inconsistent, but positive and permanent instructions, which supersede or interfere with these standard rules as well as the prescribed forms of train orders. These instructions always come into being immediately upon the violation of some standard rule or train order, with a view to preventing the possible repetition of similar violations; but do these instructions do it? The answer is that they serve but to confuse the principles and let the tail wag the dog.

Practically every railroad in the country has certain trains that must not be delayed "sawing by" at sidings which will hold only about three-fourths of the standard freight trains of today. There are many, many of these sidings. It is decreed that these trains must never take siding under any circumstances, yet the dispatcher may have many occasions when, if he could permit a "saw-by" or "take-siding," the entire railroad would be favorably affected and demoralization avoided. There are many instances where the long freight train could hold the main line, open the entering switch for the superior train, be moving forward by the time the passenger train reached the other end of the siding and open and close the switch at that end, thus saving considerable delay.

Restrictive instructions designed to guard against violations of rules, and positive commands which are inflexible regardless of what the occasion may demand, are anything but a means for efficiency, and the fewer of these imposed on the dispatchers the better. Opportunities for greater latitude in the exercise of practical judgment on the part of the dispatcher will make for greater speed, and that applied to gross train-tons will increase gross ton-miles.

Every railroad which has so far installed "centralized control," together with those that are now in the act of doing so, is not only forced to realize the truth of these statements, but is accepting them by lengthening its sidings, by improving the physical conditions for entering and leaving sidings, and above all, eliminating all superiority as between trains operating over such centralized control districts. Give the dispatcher the same facilities and similar latitude, and operating efficiency will be very much increased in spite of the material advances that have already been made in recent years.

Give the dispatchers a chance to demonstrate their capabilities by permitting them to exercise their judgment to suit contingencies as they present themselves, and eliminate the multiplicity of special instructions which, in the majority of instances, are but the result of conjectures, and a better speed level will be attained in spite of the ever increasing tonnage of trains.

J. G. LUHRSEN,
President, American Train Dispatchers' Association.

New Book

Railway Engineering and Maintenance Cyclopedia.—1116 pages, 2500 illustrations, 9 by 12 in. Bound in leather and cloth. Published by the Simmons-Boardman Publishing Company, New York City. Price: cloth, $5, leather $7.

Sweeping changes have occurred in many features of railway maintenance practice during the past decade and particularly in the last three or four years. For this reason, the third edition of the Railway Engineering and Maintenance Cyclopedia, which has just been issued, has been thoroughly revised and considerably enlarged, more than half of the former text having been re-written to conform to these recent changes in materials and methods. The new edition presents in convenient form, complete and authoritative information on the latest engineering, maintenance and signaling practices, and the methods, materials and equipment which are best adapted for these respective classes of work.

In addition to the revisions and additions which have been made in the text, more than 1,000 new illustrations have been inserted to supplement the discussions and show approved methods of doing work, applying materials and using machine equipment. Among the many commendable features of the Cyclopedia is the arrangement whereby all of the matter relating to any particular subject is collected into a single chapter, except in a few cases where it was found desirable to present different phases of certain subjects in two or more sections of the book. The literature relating to railway engineering and maintenance is widely scattered and is contained in many volumes of a technical character and in proceedings of engineering societies, so that much of it is not readily available to railway officers. For this reason, a feature of distinct value to the busy railway man is the fact that this volume supplies a complete fund of co-ordinated knowledge relating to railway maintenance, arranged for quick reference.

The general arrangement is the same as that of the previous edition which met with such widespread favor, the two major subdivisions of definitions and text having been retained. The definition section of 92 pages, with which the book opens, provides a brief but complete definition of more than 3,000 words and terms, an increase of more than 40 per cent, with frequent reference to their railway applications. This section also serves the purpose of a general subject index, as reference is made to the more detailed discussion in the text.

The wide scope of the book and the character of the data it contains are indicated by the fact that the text is divided into six general sections, which are again subdivided into more than 100 chapters, every one of which treats some subject exhaustively. These six sections cover all phases of the construction and maintenance of track and roadway, bridges, buildings, water service and signals, with a final section devoted to certain subjects which are related intimately to more than one department of railway maintenance.

Throughout the book, methods, materials and products are described tersely, special emphasis being given to the latest developments in maintenance methods and the application of labor-saving machinery to maintenance work. This treatment is followed in close sequence by a more detailed discussion of the individual characteristics, by the manufacturer of such products or by those concerns which furnish a particular service, and the advantages and economies which result from their use.

Like the Car Builders' Cyclopedia and the Locomotive Cyclopedia, which are published by the same company, the Railway Engineering and Maintenance Cyclopedia is recognized as the standard work of reference in its particular field, being equally useful to maintenance, operating and executive officers who desire to keep informed on current railway practice and

the materials and equipment best adapted for satisfactory and economical maintenance methods. The American Railway Engineering Association and the Signal Section of the American Railway Association recognize its importance in this respect and committees from each of these associations have co-operated with the editors in preparing it for publication.

The new edition of the Cyclopedia has been edited by a staff composed of Elmer T. Howson, editor (western editor of *Railway Age*), W. F. Rench, managing editor (formerly supervisor, Pennsylvania System), and George E. Boyd, associate editor (formerly division engineer, Delaware, Lackawanna & Western), assisted by Philip George Lang Jr., bridge engineer, Baltimore & Ohio, who prepared the manuscript for the bridge section; Arthur L. Sparks, architect, Missouri-Kansas-Texas, for the building section; C. R. Knowles, superintendent of water service, Illinois Central, for the water service section; and A. H. McKeen, signal engineer, Union Pacific System, for the signal section.

The Cyclopedia has a high value as a work of reference, but beyond that it is an important aid to the officer in charge of maintenance who must keep himself informed of the latest development in materials and equipment and how they can be adapted to meet the particular problems with which he has to deal. It is of equal value for operating and executive officers who must pass on the recommendations of their assistants. Likewise the purchasing agent, who must keep himself fully informed regarding the wide diversity of materials which are currently available for use, and the supervisor or foreman who must use them, find the book equally valuable.

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Agricultural Relief—A Selected and Annotated Bibliography, compiled by Esther M. Colvin. References to various discussions on what essentials of relief. Agricultural Economics Bibliography no. 27. 52 p. Issued by Library, U. S. Bureau of Agricultural Economics, Washington, D. C., *Apply*.

Airplane Transportation, by James G. Woolley and Earl W. Hill. History of airplane transportation, its commercial application, types of equipment, training of personnel, operation of routes and airports, special services, aviation insurance, weather data, costs of operation, rates and regulation, and investment in aviation enterprises discussed. 353 p. Pub. by Hartwell Pub. Co., San Francisco, Calif., $3.50.

Atlantic Coast Line Railroad Company. Brief history and survey of present prospects. 4 p. Pub. by Evans, Stillman & Co., New York City, *Apply*.

The Chinese Eastern Railway. Brief list of references on construction, finance, and international complications attending the operation of a railway now figuring prominently in the headlines the world over. 5 p. Issued by Library, Bureau of Railway Economics, Washington, D. C., *Apply*.

Periodical Articles

An Historic Train: The "Cornish Rivera" Express, Which This Summer Celebrates Its Twenty-Fifth Anniversary. Brief history of this train and a large color plate showing the "King George V," with its Baltimore & Ohio Bell (Item 3 in list of parts in diagram) and Windsor brown and cream cars, on its native heath. Illustrated London News, June 15, 1929, p. 1046, 1048-49.

In the Locomotive Cab of the East's Fastest Train, by Hudson Grunewald. Commenting that American railroading has gone in for greater speed on account of fast plane service, the author describes the inaugural run to New York in 4 hours, 14 minutes of the Pennsylvania's new Washington-Boston train. On June 27, 1873 the first Pennsylvania through train from Washington to New York required 10 hours, 15 minutes. Washington Star Magazine Section, July 28, 1929, p. 3, 5.

Looking Backward

Fifty Years Ago

The Texas & St. Louis [now part of the St. Louis Southwestern], a narrow gage line, has placed under contract the construction of 104 miles of new line extending from Ferguson, Tex., to Texarkana. *Railway Age*, July 31, 1879.

Yet another era in the contest between the Atchison, Topeka & Santa Fe and the Denver & Rio Grande for the permanent possession of the latter road was reached on July 24 when the federal court appointed a new receiver for the Rio Grande to manage the property until litigation is terminated. *Railway Age*, July 31, 1879.

The Wabash, the Cleveland, Columbus, Cincinnati & Indianapolis, [now part of the Cleveland, Cincinnati, Chicago & St. Louis] and the Indianapolis & St. Louis [also a part of the Big Four] have established a pool of their earnings. The latter two roads form a line almost parallel to that of the Wabash from the Great Lakes to St. Louis, Mo., and the competition was so keen in 1878 that each line lost about $2,000,000 through the cutting of rates. The gross earnings from freight, passenger, express and mail traffic will form the basis for the division which will remain in effect for five years.—*Chicago Railway Review*, August 2, 1879.

Twenty-Five Years Ago

The most specific single lesson in the Interstate Commerce Commission's latest accident bulletin is that train orders containing references to the second section of a train are peculiarly liable to be misread. Four collisions have occurred within a year in consequence of men reading orders and not seeing the word "Second." —*Railroad Gazette*, August 5, 1904.

A change in the motive power in the St. Clair tunnel under the Detroit river has been decided upon by the Grand Trunk and the St. Clair Tunnel. The third rail system of electricity will be used in place of steam for hauling trains and will be installed at a cost of about $400,000.—*Railway and Engineering Review*, August 6, 1904.

The Norfolk & Western has in service 100 box cars which have been constructed with a steel upper frame as well as a steel underframe. After several years of use the cars give no indication of lateral bulging and the steel members are straight and in good condition. These cars have a capacity of 80,000 lb. and a light weight of 38,000 lb. Wooden framed cars of this road of the same capacity and design weigh 40,000 lb.—*Railway Age*, August 5, 1904.

Ten Years Ago

The volume of freight traffic movement in June continued to show a marked falling off as compared with 1918, according to the monthly report of the Operating Statistics Section of the Railroad Administration. The net ton-miles decreased 15.2 per cent. For six months of the calendar year the net ton-miles represented a decrease of 14.5 per cent as compared with the same period in 1918. —*Railway Age*, August 1, 1919.

Representatives of the American Federation of Labor are in Washington threatening to order a general strike on August 1 unless the Railroad Administration will enter into a comprehensive agreement on wages and working conditions. Director General Hines on July 30 advised a committee of 100 shopmen that an immediate decision would be given and the strike seems to be temporarily averted. —*Railway Age*, August 1, 1919.

Odds and Ends of Railroading

The Illinois Central is the alpha and the omega of the new city directory of Memphis, Tenn. The name that leads all the rest is that of Agbert H. Aalbers, traveling mechanical inspector for the Illinois Central, and the book closes with the name of Theo. Zurhorst, an Illinois Central clerk.

Another Long Waybill

The Illinois Central is the most recent competitor for the honor of issuing the longest waybill. Its contribution was issued at the South Water Street station in Chicago, and is 12 ft. long. It covered a shipment from a mail-order house, containing 490 items, in 1,526 packages, and weighing 55,914 lb.

A Record Drive

Ross Foley, of Irvine, Ky., claims the golfing championship of the world, with a drive of 200 miles. Playing his local course, Foley drove a ball, marked with his initials, out of sight in the direction of the railway tracks. Five days later, a brakeman found the ball in an empty gondola at Neon, 200 miles away.

A Point of Law

An annual railway pass is not necessarily a certificate of good character, according to some judges. The Missouri supreme court recently ruled to this effect in sustaining the refusal of a trial court to admit in evidence the possession of such a pass by an alleged bootlegger, who sought, by means of the pass, to establish his good character.

A Steady Passenger

One of the most remarkable railway passengers is Mrs. Frank M. Jones, of Tacoma, Wash., age 84, who recently completed her eighty-seventh transcontinental journey from Tacoma to Saranac Lake, N. Y. F. A. Valentine of the Chicago, Milwaukee, St. Paul & Pacific, has successfully solicited Mrs. Jones' patronage for his railroad on 81 of the 87 trips she has made.

Another Romance Passes From the Western Scene

The overland drive of cattle, already fast disappearing, is to be rooted from one of its last strongholds in the southwest. Both the Santa Fe and Texas & Pacific want to connect Lovington, N. M., with the outside world. For years cattle and sheep from New Mexico ranches have been driven 70 miles to shipping points at Roswell, N. M., or Seagraves, Tex. Whichever railroad wins its application, no more cattle will be driven overland.

Feminine Service Records

New York.

In the June 1 issue of the *Railway Age,* on page 1300, reference is made to service of Miss Luella Eaton, telegrapher and clerk, Pere Marquette, under the heading, "Longest Feminine Service Record?". Possibly you will be interested to have reference to the service record of a pensioned New York Central employee, Mrs. Martha E. Donk, who was retired under the age limit rule, August 31, 1928, following 55 years, 5 months of continuous service as operator and ticket agent on the Syracuse Division.

J. A. Dailey
Secretary, Board of Pensions, New York Central.

Two Railway Dogs

Two dogs who earn their board and keep as railroaders are Saul and Rex. Saul is a collie, owned by a section foreman on the Minneapolis & St. Louis at Rawleigh, Iowa. Each evening for four years he has met train 21 to get a newspaper, which the conductor throws off to him, and bring it home. He knows the train's time and never misses it. Rex is a pointer, owned by the agent of the Virginian at Salem, Va. For the past year, he has been in railway service, delivering the daily interchange reports between the agent's office of the Virginian and the agent's office of the Norfolk & Western. If for any reason the report is delayed, he expresses his disapproval of such dilatory methods by loud and continued barking.

Car Thieves, Attention!

A picked team of Canadian Pacific police recently won the Ontario provincial revolver championship, with the remarkable score of 1,364 out of a possible 1,500. Constable Tingman was the individual star, with 284 out of a possible 300. Tingman is one of the best shots with a revolver in Canada, having frequently scored 99 out of 100 in competition.

Winnipegosis Amber

Cheap amber pipe stems may be one result of the opening up of the new Hudson Bay Railway by the Canadian National. What is believed to be one of the world's richest deposits of amber lies 20 miles southeast of The Pas, close to Lake Winnipegosis. These deposits, although known to the Canadian government for many years, have never been opened up owing to lack of transportation. Outside of Russia, the only present amber deposit of consequence is near Albany, N. Y.

It Was Worth It

Washington, D. C.

Apropos of a recent item telling of Judge Gary's service with the Illinois Central, I once heard John F. Wallace tell a story of his association with Judge Gary in the location and construction of the Belt Railway of Chicago. As counsel, Judge Gary submitted a bill for $5,000 for services rendered. It was suggested that he itemize the bill, which he did, with the following result:

For drawing up right of way and crossing agreements	$1,000
For legal services in connection therewith	2,000
For listening to Wallace talk	2,000
Total	$5,000

A. Gordon Jones

A Railroad "Edison"

Frank V. Carman, a retired cabinet maker of the Southern Pacific and former superintendent of the West Oakland (Cal.) mill, who died recently at the age of 77 years, was known on the Pacific Coast as the "Edison of the Railroad." His patents, all of which pertained to railroad devices, the Southern Pacific Bulletin informs us, numbered 53. The more important were a spike-mole plug machine, a car-stake pointing machine, an eight-auger gang-boring machine, a curve-stake engraving machine, a traveling-bed resaw for sawing around logs, a double-end, baggage-trailer truck, a rail joint adjuster, a rail profile instrument, a tie adzing machine, a non-slip steel grip car moving bar, an instantaneous fire hydrant, a folding steel car stake and a weatherproof joint box car door.

Now You Tell One!

Several years ago a claim was received from a farmer covering the sudden passing of his cow on a certain railroad right of way. The claim agent called upon the farmer and explained to him that his railroad was in poor financial circumstances, needed money and was on the verge of bankruptcy. A few days later, the claim agent received the following letter from the farmer:

"I was surprised to learn that the railroad is in such poor financial shape. It is my intention to co-operate fully in any way I can to bring about the perpetuation of your great industry and, after hearing your talk, and considering the matter from all angles, I am withdrawing my claim for the cow you killed and am enclosing herewith my check for $5 to help you out."

NEWS *of the* WEEK

Three Sections of the Atlantic Coast Line's "The Champion" Leaving Broad Street Station, Richmond, Va.

THE CHICAGO, ROCK ISLAND & PACIFIC will hold its sixth annual athletic tournament at Topeka, Kan. on August 24.

THE CITY OF YANKTON (S. D.), under a recent act of the South Dakota legislature, has voted the issuance of $75,000 of bonds to aid the Yankton, Norfolk & Southern now under construction in that state.

FIRE, thought to have started from a lighted cigarette, practically destroyed the Union Pacific dock at Seattle, Wash., on July 17 with damage estimated at $250,000. The pier, which was built in 1918 was 600 ft. long and 175 ft. wide.

REGULATIONS governing an organization, known as Electrical Section, Division IV-Engineering, American Railway Association, have just been approved. Sidney Withington, electrical engineer, New York, New Haven & Hartford is chairman of the section.

IN THE NEW RULE BOOK of the Central Vermont, which was put into effect on July 28, Rule 84 provides that, on passenger trains, the signal to start is to be given, not by the time-honored hand signal, but by the air communication signal, sounding a whistle in the locomotive cab.

THE AMERICAN TRAIN DISPATCHERS ASSOCIATION, at its biennial meeting, held at Chicago on July 22, elected the following officers: President, J. G. Luhrsen, formerly of the Great Northern at Spokane, Wash., re-elected; vice-president, A. M. Gorman, formerly of the Southern Pacific at Portland, Ore.; and secretary-treasurer, C. E. Darling, re-elected.

NEWS LETTER No. 35 has been issued by the Railway Fire Protection Association (F. R. Bradford, Boston & Maine, Boston, president). Leading articles give the proceedings of a meeting of the Eastern Section of the Association at New York on June 18, and details of the lesson of a very costly gasoline fire which followed the derailment of a freight train at a point where gasoline was unloaded from cars on a track immediately adjacent to a main line. Members of the Association intending to be present at the annual meeting in Toronto, Ont., October 15, are advised to make their reservations for rooms at the new Canadian Pacific Hotel in that city, through E. Moore, commissioner of insurance, C. P. R., Montreal.

THE MISSOURI PUBLIC SERVICE COMMISSION, on July 25, granted, in part, the application of the St. Louis Southwestern for authority to acquire all of the franchises and properties of the Gideon & North Island and the Deering & Southwestern and to merge them with the St. Louis Southwestern. That part of the application affecting portions of the small lines in Arkansas was denied. The commission also held that it had no jurisdiction on questions of public convenience and necessity, such as the construction of connecting links between the three roads, such jurisdiction resting with the Interstate Commerce Commission.

"HEALTH SUPERVISION IN INDUSTRY" is the title of No. 5 of the series of health practices pamphlets issued by the National Safety Council (108 East Ohio street, Chicago). This is an 8-page pamphlet, fully illustrated, describing hospital and dispensary facilities in large industrial establishments, preceded by a succinct statement of the argument for the establishment of health service by all kinds of industries. Numerous existing examples in large industries are well known, but the point is made that successful work is being done also in small plants. Adequate and intelligent service of this kind provides for the reduction of injuries and sickness, and of losses from inefficiency of employees; and there is sure to be an improvement in the general morale.

THE RAILWAY & LOCOMOTIVE HISTORICAL SOCIETY (6 Ormney road, Brookline, Mass.) has issued its eighteenth bulletin, an interesting pamphlet of 74 pages. Leading articles are those on Canadian locomotives in the Fifties, and on the New Castle Manufacturing Company, of Delaware. This last, a reprint of an article by J. Snowden Bell, published in 1922, gives interesting data concerning the New Castle and Frenchtown Railroad, which was one of the first railroads in this country to make regular passenger movements in cars drawn by locomotives. This early builder built 25 or more locomotives for the Philadelphia, Wilmington & Baltimore, and the article includes a drawing, made by Mr. Bell, of the "America" built in 1854. This locomotive embodied mechanical and artistic features, which, a few years later, were copied all over the country.

Moffat Tunnel Blocked By Timbering Failure

All train service on the Denver & Salt Lake through the Moffat tunnel was suspended on July 25 when the track was blocked by earth and rock which fell when a section of timbering failed 2,000 ft. from East Portal. Additional caveins occurred on July 26 and it was estimated that about 500 cu. yds. of earth and rock covered the tracks and that about 75 ft. of timbering would require replacement. The failure of the timbering was attributed to dry rot. Trains were detoured over the old line via Corona and on July 27 it was expected that the line through the tunnel would be opened this week.

Santa Fe Picnic

A total of 207 retired employees were the guests of honor at the Atchison, Topeka & Santa Fe picnic held at Ripley Park, Topeka, Kan. on July 24. The attendance, although smaller than in previous years, totaled 18,000 persons, who enjoyed a program in which athletic contests, boxing bouts, baseball games and horse shoe tournaments were featured. The Santa Fe shop band of 45 pieces gave two concerts, one in the afternoon and another at night. Two picture shows at night proved to be popular attractions. A special chicken dinner was served to the retired employees and their families.

At Lakewood Park, 700 of the colored employees and their families held another picnic. Ball games and a beauty parade enlivened the program.

D. & H. Pacific Type Locomotive —A Correction

A brief description of the Delaware & Hudson 4-6-2 type locomotive recently placed in passenger service between Troy, N. Y., and Montreal, Que., was published in the July 20, 1929, issue of the *Railway Age*, page 201. Our attention

has been called to several errors which appeared in the table showing the principal dimensions, weights and proportions which was published in connection with the article. The cylinders are 22 in. in diameter, instead of 20 in. The locomotive is provided with 142 flues, 3½ in. in diameter instead of 2 1/4 in. in diameter, and has 30 tubes, 2 1/4 in. in diameter instead of 5½ in. in diameter. The boiler of this locomotive is straight top rather than wagon top design.

"Peppersass" Wrecked by Broken Pinion Tooth

The Boston & Maine has issued a statement to the effect that the investigation of the accident to the locomotive known as "Peppersass" on the Mount Washington (New Hampshire) cog railroad, on July 20, disclosed a broken pinion tooth and a bent pinion shaft, which undoubtedly were the cause of the derailment. The boiler was recovered intact. There was no explosion. It is stated that the gears, as well as other parts of the locomotive had been tested in the shops and in actual operation in four trial trips on the Mountain.

The railway was reopened on July 24. The locomotives now in use have a double drive and each train has four distinct braking devices. The old locomotive is being restored, and will be delivered to the state of New Hampshire in accordance with the original plan.

Chicago-Texas Air and Rail

The Illinois Central, in conjunction with the Southwest Air Fast Express, on August 1 began the operation of a rail and air service between Chicago and points in Oklahoma and Texas for which a single through ticket will be sold. The railroad will be used from Chicago, leaving that city at 11:55 p. m. and arriving at St. Louis, Mo., at 7:28 a. m. where a transfer will be made by the airplane company's motor coach to Lambert field. Leaving St. Louis the plane will arrive at Springfield, Mo., at 10:35 a. m., Tulsa, Okla., at 12:25 p. m., Oklahoma City at 1:55 p. m., Wichita Falls, Tex., at 3:20 p. m., Fort Worth at 4:10 p. m., Dallas at 4:30 p. m. and Sweetwater at 5 p. m. Ford 14-passenger tri-motored cabin monoplanes will be used in this service. The passenger rate for the air portion of the trip will be 10 cents an air mile, with a free allowance of 25 lb. of baggage.

Fewer Locomotives Awaiting Repairs

Fewer locomotives were in need of repair on the Class I railroads of the United States on July 1 than at any time since the railroads began the compilation of these reports in 1920, the Car Service Division of the American Railway Association has announced. The number was 7,453 or 13 per cent of the number on line. This was a reduction of 350 locomotives, or 4.5 per cent as compared with the best previous record established on June 1, at which time there were 7,803 locomotives, or 13.6 per cent, awaiting repairs.

Locomotives in need of classified repairs on July 1 totaled 4,152, or 7.2 per cent, a reduction of 305 compared with June 15, while 3,301, or 5.8 per cent, were in need of running repairs, a decrease of 207 compared with June 15. Class I railroads on July 1 had 5,411 serviceable locomotives in storage compared with 5,592 on June 15.

The C. P. R. in June

Net operating revenues of the Canadian Pacific in June totaled $2,992,925, the greatest shown by any month of June in 12 years. In comparison with June, 1928, they show on increase of $115,740.

Gross earnings for June, $18,322,596, were at the highest level for that month in the history of the road. When compared with June, 1928, they show an increase of $821,657, while by the same comparison operating expenses increased $705,917.

For the six-month period ended with June, gross revenues were $101,646,751, show an increase of $3,940,948. This is the first time that gross for the six-month period has passed the $100,000,000 mark. Net operating revenue for the six months shows a decline of $94,906.

The following table shows the earnings, expenses and net for the month of June, and for the six-month period ending with June with comparisons:

	JUNE		
	1929	1928	Inc.
Gross	$18,322,596	$17,500,938	$821,657
Exp.	15,329,671	14,623,754	705,917
Net	$2,992,925	$2,877,184	$115,740

	SIX MONTHS ENDING—		
	June 29	June 28	Inc.
Gross.	$101,646,751	$97,705,802	$3,940,948
Exp.	85,289,920	81,254,065	4,035,855
Net	$16,356,830	$16,451,737	* $94,906

* Decrease.

New C. N. R. Pension Rules

New pension rules and regulations, giving effect to the Canadian National Railways Pension Act, became operative on Canadian National employees August 1. The provisions of the act cover rules and regulations adopted by Canadian National directors to govern pension allowances.

These rules and regulations cover all classes of employees. Important changes from the preceding regulations provide for the direct representation of the labor organizations on the Pension Committee, and an increase in the minimum pension allowance from $200 to $300 per annum. W. D. Robb, vice-president of the Canadian National, said that while the retiring age of 65 years remains unchanged, the committee has authority to consider each individual case and permit continued service on request from officials of the department concerned, governed, of course, by the physical condition of the individual.

The Pension Committee referred to will consist of nine members, seven of whom shall be officers of the company, including the chief officer in charge of pensions—in this instance, Mr. Robb—and the chief officer in charge of, respectively, legal affairs, operation, traffic, finance, purchases and stores, and the chief medical officer. In addition, two members are to be elected from time to time from the ranks of the general chairmen of the recognized labor organizations by vote of these general chairmen. The head office of the Pension Committee will be at Montreal.

The rules and regulations, after explaining that service provides for employment in the various activities of the railway and its component companies, steamships and telegraphs, states continuous employment will govern the pension allowance, so that after any departure from service and a re-engagement, their service for pension purposes will count only from date of re-entering the company's employ.

The pension is an annual allowance calculated at the rate of 1 per cent for each year of service on the highest average rate of the employee's wages or pay during any ten consecutive years of his service.

Provision is made for the committee to consider war service in the army, navy or air forces of the Allies during the World War as not causing a break in employment. It is also provided that credit will be given for periods on which employees are absent on leave while employed as general chairmen, legislative representatives, or any other higher official position approved by the directors, or organizations of labor operating on the lines of the railway and recognized by the directors.

Rock Island and Katy Seek to Acquire B. M. & E.

A hearing on the conflicting applications of the Chicago, Rock Island & Pacific and the Missouri-Kansas-Texas for permission to acquire the Beaver, Meade & Englewood, extending between Beaver, Okla., and Hough, 67 miles, in Western Oklahoma, was held before Charles D. Mahaffe, director of finance of the Interstate Commerce Commission, at Oklahoma City, Okla., on July 26 and 27. The testimony in the case was preceded by an agreement between the Rock Island and the Katy that there was no dispute between the two applicants as to the advisability of acquirement by one of them.

Witnesses for the Rock Island appeared on July 26. Harry G. Clark, vice-president of that railroad, declared that permission to purchase the short line would be followed by abolition of the rate differentials now existing between the two railroads. George E. Schnitzer, general freight agent, outlined advantages that would accrue to the shippers in that territory by Rock Island purchase of the line. Other witnesses stated that in the event the Rock Island is allowed to make the purchase, immediate steps would be taken to improve the physical condition of the road.

The case for the Katy purchase was favored by G. A. Roberts, president of the Oklahoma Wheat growers' Association, who expressed the belief that if the line should be acquired by the Rock Is-

land, competition between various railways for wheat shipped from points on the B., M. & E. would be eliminated and that the service afforded the shippers would be reduced. Charles G. Miller, newspaper editor of Guymon, Okla., and E. B. Shields, manager of Texas county wheat elevators, presented photographs of wheat stored on the ground at stations in Rock Island territory.

On the last day of the hearing the Alva (Okla.) chamber of commerce presented a resolution favoring the Rock Island application, pointing out that the majority of the wheat mills of the state are located on Rock Island lines and that shippers and consumers would benefit from a one-line rate from B., M. & E. wheat producing territory to the mills.

Moffat Tunnel Lease Aired

That the use of the Moffat tunnel is not worth more to the Denver & Salt Lake than the present rental, is the contention of the railway in a suit which began in the federal district court at Denver, Colo., on July 16, before Judge J. F. Symes. This suit, which was brought by the D. & S. L. to enjoin the Moffat Tunnel Commission from cancelling the present lease and endeavoring to collect higher rentals, is the culmination of the litigation involving the tunnel. This litigation is almost entirely traceable to the fact that the construction of the tunnel cost far more than the original estimates.

The tunnel was a part of the conception of David H. Moffat, who built the Denver & Salt Lake with the idea of placing Denver on a through transcontinental line. Up to the present, however, the various plans for consummating this, as described in the *Railway Age* of February 18, 1928, have not been carried out and the D. & S. L. is still a local line, extending from Denver, Colo., to Craig, 254 miles, with no connections to the West.

The building of the tunnel was financed by taxes paid by property owners in what is known as the Tunnel Improvement District, which includes the city of Denver and a large part of northwestern Colorado. Prior to the completion of the tunnel, the D. & S. L. operated over a line which crosses Rollins pass at an elevation of 11,660 ft., involving grades of four per cent for a distance of 27 miles. That the D. & S. L. is in earnest in stating that it cannot afford to use the tunnel at a higher rental, is indicated by the fact that the line across Rollins pass has been re-conditioned and made ready for operation in the event of an adverse court decision.

To cover the original estimate of the cost of the tunnel, the Moffat tunnel commission issued $6,720,000 of bonds on July 1, 1923. On January 7, 1926, the tunnel commission and the D. & S. L. signed a lease providing for the use of the tunnel by the railway for a period of 50 years, the railroad assuming two-thirds of all interest and principal of the $9,220,000 of bonds outstanding at that time, plus annual maintenance charges of $12,000 and the interest and principal of an additional $1,000,000 of bonds. Under this lease, the yearly rental for the first 16 years would amount to about $346,000, payable semi-annually. This was the basis on which the D. & S. L. began operating trains through the tunnel early last year.

After the lease was signed, however various construction difficulties were encountered and the estimates as to the cost of the tunnel had to be radically revised. When the tunnel was completed, it was found to have cost $17,813,973, which expense was covered by four supplementary bond issues, aggregating $10,250,000, making the total bond issues $16,970,000, of which $15,470,000 have been sold.

On June 23, 1928, the Denver Land Company, which is composed of a group of property owners in the tunnel assessment district, filed a suit to enjoin the tunnel commission from leaving a special tax on property owners to pay the interest on the supplemental issue of $8,750,000 of bonds. A decision was rendered on October 6, in the United States district court at Denver, refusing to restrain the commission from making the assessment.

Thus matters stood until January of this year, when the commission itself, sought to collect rentals on the basis of the total cost of the tunnel, which would mean about $850,000 annually, as compared with the rentals of $347,500 annually, as provided for in the lease.

The Denver & Salt Lake immediately filed the injunction suit which is now being heard, whereupon the taxpayers of the assessment district entered the case as intervenors, being represented by the Denver Real Estate Exchange and the Manufacturers' Bureau.

Attorney Gerald Hughes, who is also chairman of the board of directors of the D. & S. L. contended, at the opening session, that the commission had always, until January, 1929, proceeded on the basis that the lease was valid, and that it was signed only after an extended investigation as to its justice and validity. He maintained that the rentals were fixed on the basis of the value of the tunnel to the railway, regardless of the cost of the tunnel and regardless of any bonds that might thereafter be issued.

He stated that the attempts to cancel the lease were preventing the public from reaping the benefits intended to be brought about by the tunnel, and prohibiting its use as a part of a direct transcontinental line through Denver. He said:

"At present, the tunnel, of itself, does not accomplish much for the public or the railroad, which is 252 miles long, and does only a local business."

Forty-two exhibits, many of them consisting of minutes of the meetings of the tunnel commission, were presented by Mr. Hughes and his associates, as evidence that the commission proceeded on the basis that the lease was legal, for two years, before undertaking to question it.

The commission's attorneys then testified that, in their opinion, the lease was invalid because it violated Section 9 of the Moffat Tunnel Act, which provides that the rental of the tunnel shall be based on its value to the user. General Counsel Norton Montgomery, representing the commission, claimed that, in 1928, the D. & S. L., as a result of operating through the tunnel, showed an operating income of $1,631,046, while its average operating income for the four preceding years was only $436,000. He testified that, at the time the lease was signed, the commission believed it had ample funds to finish the tunnel, but that an underground watercourse and other difficulties encountered in the construction made it necessary to expend much more money, which was procured by the issuance of supplemental bonds. According to his interpretation, the contract calls for the payment by the railroad of two-thirds of the interest on these bonds, as well as on the bonds outstanding at the time the lease was made.

On his return to the stand, Mr. Hughes related details of the negotiations between the Denver & Salt Lake, the Denver & Rio Grande Western and the Interstate Commerce Commission as to the construction of the Dotsero cut-off. According to Hughes, these negotiations were on the basis of the tunnel lease, and the construction of the cut-off will be indefinitely postponed if the lease is not upheld as it stands.

At the close of the session on July 19, the case was postponed until July 25, when a one-day hearing will be held, after which the case will be postponed again until August 5, when the hearing will continue until the case is finished.

M. C. B. & S. Association Convention Program

During the past year, the newly-organized Master Car Builders' & Supervisors' Association has made notable progress under the leadership of President S. O. Taylor, master car builder, Missouri Pacific, St. Louis, Mo., and Secretary A. S. Sternberg, master car builder, Belt Railway of Chicago, Chicago, and plans have been perfected for an unusually well-balanced and constructive program at the fall convention. This meeting, the first annual convention of the new association, will be held at the Hotel Sherman, Chicago, September 4 to 6, inclusive. Details of the program, developed by the Subjects Committee under the direction of Chairman C. J. Wymer, superintendent car department, Chicago & Eastern Illinois, Danville, Ill., and first vice-president of the association, are as follows:

First Session—Wednesday, September 4

10:00 a.m. Meeting called to order.
Invocation by B. F. Jamison, special traveling auditor, Southern, Meridian, Miss.
Address by President S. O. Taylor, master car builder, Missouri Pacific, St. Louis, Mo.

10:30 a.m. Report by Secretary A. S. Sternberg, master car builder, Belt Ry. of Chicago.

10:45 a.m. Address by R. H. Aishton, president, American Railway Association.

11:15 a.m. Address by T. W. Demarest, general superintendent of motive power, Pennsylvania, Western Region, Chicago.

11:45 a.m. Individual paper on "High Frequency Car-Shop Tools and Machinery," by C. D. Coates, electrical engineer, Chicago Pneumatic Tool Company, Cleveland, Ohio.

12:30 p.m. Adjournment.

Second Session

2:00 p.m. Report of Advertising Committee—Chairman H. A. Sigwart, supervisor car repair bills, Missouri Pacific Railroad, St. Louis, Mo.

2:10 p.m. Report of Membership Committee—Chairman K. F. Nystrom, superintendent car department, Chicago, Milwaukee, St. Paul & Pacific, Milwaukee, Wis.

2:20 p.m. Report of Committee on Reclamation—Chairman G. W. Lieber, superintendent of reclamation, Missouri-Kansas-Texas, Parsons, Kans.

3:00 p.m. Report of Committee on Elimination of Oil and Grease Spots from Floors of Box Cars for High-Class Commodities—Chairman W. T. Westall, district master car builder, New York Central, Collinwood, Ohio.

4:00 p.m. Report of Committee to Formulate Uniform Methods for Education, Examination and Selection of Car Inspectors—Chairman F. E. Cheshire, general car inspector, Missouri Pacific, St. Louis, Mo.

5:00 p.m. Adjournment.

First Session—Thursday, September 5

9:00 a.m. Report of Committee on Proper Maintenance of Tank-Car Equipment and Its Effect on Increasing Car Mileage—Chairman C. H. McBurney, master car builder, Transcontinental Oil Company, Tulsa, Okla.

9:30 a.m. Report of Committee on Proper Loading of Cars—Chairman C. J. Nelson, chief interchange inspector, Chicago.

10:15 a.m. Report on Methods of Loading Automobiles to Minimize Damage to Floors of Automobile Cars—Chairman M. J. Mills, master car builder, Pere Marquette, Detroit, Mich.

11:15 a.m. Report of Committee on Renovation, Fumigation and Disinfection of Passenger Equipment—Chairman W. J. McClennan, general shop inspector, New York Central, New York City.

12:00 Adjournment.

Second Session

2:00 p.m. Address on "Psychological Aspects of Handling Men," by Doctor S. N. Stevens, Northwestern University, Chicago.

2:45 p.m. General discussion on rebuilt cars—Opened by W. J. McClennan, general shop inspector, New York Central, New York City.

3:15 p.m. General discussion on improved wheel-shop practices—Opened by J. Matthes, Jr., chief car inspector, Wabash, Decatur.

3:45 p.m. Adjournment to view exhibits.

First Session—Friday, September 6

9:00 a.m. Report of A.R.A. Committee—Chairman M. E. Fitzgerald, general car inspector, Chicago & Eastern Illinois, Danville, Ill.

Report of A.R.A. Billing Section Committee—Chairman E. S. Swift, chief A.R.A. clerk, Wabash, Decatur, Ill.

Discussion and interpretation of A.R.A. interchange rules.

12:00 Adjournment.

Second Session

2:00 p.m. Continuation of discussion of A.R.A. rules.

3:30 p.m. Report of Nominating Committee—Chairman S. O. Taylor, master car builder, Missouri Pacific, St. Louis, Mo.

3:40 p.m. Election of officers.

4:00 p.m. Report of Committee on Memorials and Courtesies—Chairman T. J. O'Donnell, chief interchange inspector, Niagara Frontier, Buffalo, N. Y.

Meetings and Conventions

The following list gives names of secretaries, date of next or regular meetings and places of meetings.

AIR BRAKE ASSOCIATION.—T. L. Burton, Room 5605, Grand Central Terminal Building, New York City. Exhibit by Air Brake Appliance Association.

AIR BRAKE APPLIANCE ASSOCIATION.—Fred W. Venton, Crane Company, 836 So. Michigan Blvd., Chicago. Meets with Air Brake Association.

AMERICAN ASSOCIATION OF FREIGHT TRAFFIC OFFICERS.—J. D. Gowin, 112 W. Adams St., Chicago.

AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.—E. L. Duncan, 332 S. Michigan Ave., Chicago.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York. Annual convention, September 16-17, 1929, Winnipeg, Man.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—J. Rothschild, Room 400, Union Station, St. Louis, Mo. Next convention, 1930, Minneapolis, Minn.

AMERICAN ASSOCIATION OF SUPERINTENDENTS OF DINING CARS.—F. R. Borger, Supt. Dining Car Service, Monon Route, Chicago. Next meeting, October 8-10, Mount Royal Hotel, Montreal, Canada.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—J. W. Welsh, 292 Madison Ave., New York. Annual convention, September 28-October 4, 1929, Atlantic City, N. J.

AMERICAN RAILROAD MASTER TINNERS' COPPERSMITHS' AND PIPE FITTERS' ASSOCIATION.—C. Borchert, 202 North Hamlin Ave., Chicago.

AMERICAN RAILWAY ASSOCIATION.—H. J. Forster, 30 Vesey St., New York, N. Y.

Division I.—Operating. J. C. Caviston, 30 Vesey St., New York, N. Y.

Freight Station Section.—R. O. Wells, Freight Agent, Illinois Central Railroad, Chicago.

Medical and Surgical Section.—J. C. Caviston, 30 Vesey St., New York.

Protective Section.—J. C. Caviston, 30 Vesey St., New York.

Safety Section.—J. C. Caviston, 30 Vesey St., New York.

Telegraph and Telephone Section.—W. A. Fairbanks, 30 Vesey St., New York. Next convention, Sept. 17-20, 1929, Hotel St. Paul, St. Paul, Minn.

Division II.—Transportation.—G. W. Covert, 431 South Dearborn St., Chicago.

Division III.—Traffic.—J. Gottschalk, 143 Liberty St., New York.

Division IV.—Engineering.—E. H. Fritch 431 South Dearborn St., Chicago, Ill. Exhibit by National Railway Appliances Association.

Construction and Maintenance Section.—E. H. Fritch.

Electrical Section.—E. H. Fritch.

Signal Section.—H. S. Balliet, 30 Vesey St., New York. Stated meeting, September 10-12, 1929, Atlanta-Biltmore Hotel, Atlanta, Ga.

Division V.—Mechanical.—V. R. Hawthorne, 431 South Dearborn, St., Chicago, Ill. Annual convention. June 18-25, 1930, Atlantic City, N. J. Exhibit by Railway Supply Manufacturers' Association.

Equipment Painting Section.—V. R. Hawthorne, 431 South Dearborn St., Chicago. Annual meeting, September 10-12, 1929. Muehlbach Hotel, Kansas City, Mo. Exhibit by Supply Men's Association.

Division VI.—Purchases and Stores.—W. J. Farrell, 30 Vesey St., New York, N. Y. Annual convention, June, 1930. Atlantic City.

Division VII.—Freight Claims.—Lewis Pilcher, 431 South Dearborn St., Chicago, Ill. Next meeting, June, 1930, Seattle, Wash.

Division VIII.—Motor Transport.—George M. Campbell, American Railway Association, 30 Vesey St., New York, N. Y. Next meeting, November, Toronto.

Car Service Division.—C. A. Buch, 17th and H Sts., N. W., Washington, D. C.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W. Ry., 319 N. Waller Ave., Chicago. Annual convention, October 15-17, 1929, Roosevelt Hotel, New Orleans, La. Exhibit by Bridge and Building Supply Men's Association.

AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.—E. L. Taylor, Asst. to Exec., Vice-Pres., N. Y., N. H. & H., New Haven, Conn.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—Works in co-operation with the American Railway Association, Division IV.—E. H. Fritch, 431 South Dearborn St., Chicago. Exhibit by National Railway Appliances Association.

AMERICAN RAILWAY MAGAZINE EDITORS' ASSOCIATION.—Miss Page Nelson Price, Norfolk & Western Magazine, Roanoke, Va.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—G. G. Macina, C. M., St. P. & P. R. R., 11402 Calumet Ave., Chicago. Annual convention, September 11-14, 1929, Hotel Sherman, Chicago. Exhibit by Supply Association of the American Railway Tool Foremen's Association.—Secretary: C. C. Ziegler, Greenfield Tap & Die Co., 13 So. Clinton St., Chicago.

AMERICAN SHORT LINE RAILROAD ASSOCIATION.—T. F. Whittelsey, Union Trust Bldg., Washington, D. C.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York. Railroad Division, Marion B. Richardson, 30 Church St., New York.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—H. L. Dawson, 228 N. LaSalle St., Chicago. Annual convention, January 28-30, 1930, Seattle, Wash.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—H. D. Morris, District Claim Agent, Northern Pacific Ry., St. Paul, Minn.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W., Room 413, C. & N. W. Station, Chicago. Annual meeting, October 22-25, 1929. Hotel Sherman, Chicago. Exhibit by Railway Electrical Supply Manufacturers' Association.

ASSOCIATION OF RAILWAY EXECUTIVES.—Stanley J. Strong, 17th & H Sts., N. W., Washington, D. C.

ASSOCIATION OF RAILWAY SUPPLY MEN.—E. H. Weaver, Westinghouse Air Brake Co., 80 E. Jackson Blvd., Chicago. Meets with International Railway General Foremen's Association.

BOILER MAKER'S SUPPLY MEN'S ASSOCIATION.—George R. Boyce, A. M. Castle & Co., Chicago. Meets with Master Boiler Makers' Association.

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—I. B. Tanner, Jos. E. Nelson & Sons, 3240 So. Michigan Ave., Chicago. Meets with American Railway Bridge and Building Association.

CANADIAN RAILWAY CLUB.—C. R. Crook, 129 Charon St., Montreal, Que.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—G. K. Oliver, Chicago & Alton, Chicago. Regular meetings, 2nd Monday in month, except June, July and August, Great Northern Hotel, Chicago.

CAR FOREMEN'S ASSOCIATION OF LOS ANGELES.—J. W. Krause, 514 East Eighth St., Los Angeles, Calif. Regular meetings, second Friday of each month, 514 East Eighth St., Los Angeles.

CAR FOREMEN'S ASSOCIATION OF ST. LOUIS, MO.—F. G. Wiegmann, 720 N. 23rd St., East St. Louis, Ill. Meetings first Tuesday of each month, except July and August, Broadview Hotel, East St. Louis, Ill.

CENTRAL RAILWAY CLUB.—E. F. Ryan (President), Buffalo, Rochester & Pittsburgh Ry., Buffalo, N. Y. Regular meetings, 2nd Thursday each month, except June, July, August, Hotel Statler, Buffalo, N. Y.

CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S ASSOCIATION.—(See Master Car Builders' and Supervisors' Association.)

CINCINNATI RAILWAY CLUB.—D. R. Boyd, 811 Union Central Bldg., Cincinnati, Ohio. Meetings, 2nd Tuesday in February, May, September and November.

CLEVELAND RAILWAY CLUB.—F. L. Frericks, 14416 Alder Ave., Cleveland, Ohio. Meetings, first Monday each month, except July, August, September, Hotel Hollenden, Cleveland.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—W. J. Mayer, Michigan Central R. R., Detroit, Mich. Next meeting, August 20-22, 1929, Fort Shelby Hotel, Detroit, Mich. Exhibit by International Railroad Master Blacksmith's Supply Men's Association.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' SUPPLY MEN'S ASSOCIATION.—W. A. Champieux, Oxweld Railroad Service Co., 80 E. Jackson Blvd., Chicago.

INTERNATIONAL RAILWAY CONGRESS—Madrid, Spain, May 5-15, 1930.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—L. G. Plant, 80 E. Jackson Blvd., Chicago. Exhibit by International Railway Supply Men's Association.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 1061 W. Wabasha St., Winona, Minn. Annual convention, September 17-20, Hotel Sherman, Chicago.

INTERNATIONAL RAILWAY SUPPLY MEN'S ASSOCIATION.—L. R. Pyle, Locomotive Firebox Co., Chicago. Meets with International Railway Fuel Association.

MASTER BOILER MAKERS' ASSOCIATION.—A. F. Stiglmeier, Act. Sec., New York Central, 138 N. Allen St., Albany, N. Y. Exhibit by Boiler Maker's Supply Men's Association.

MASTER CAR BUILDERS' AND SUPERVISORS' ASSOCIATION.—A. S. Sternberg, Belt Ry. of Chicago, Polk and Dearborn Sts., Chicago. Annual convention, September 4-6, Hotel Sherman, Chicago.

NATIONAL ASSOCIATION OF RAILROAD TIE PRODUCERS.—Roy M. Edmonds, 1252 Syndicate Trust Bldg., St. Louis, Mo.

NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS.—James B. Walker, 270 Madison Ave., New York. Next convention, August 27-30, 1929, Glacier National Park, Mont.

NATIONAL RAILWAY APPLIANCES ASSOCIATION.—C. W. Kelly, 1014 South Michigan Ave., Chicago. Exhibit at A. R. E. A. convention

NATIONAL SAFETY COUNCIL.—Steam Railroad Section: A. W. Smallen, C. M., St. P. & P., Chicago.

NEW ENGLAND RAILROAD CLUB—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, 2nd Tuesday in month, excepting June, July, August and September, Copley-Plaza Hotel, Boston, Mass.

NEW YORK RAILROAD CLUB.—E. Sumner (President), Asst. to Gen. Supt. M. P., Penna. R. R., Philadelphia, Pa. Regular meetings, 3rd Friday in month, except June, July and August.

PACIFIC RAILWAY CLUB.—W. S. Wollner, 64 Pine St., San Francisco, Cal. Regular meetings 2nd Tuesday in month, alternately in San Francisco and Oakland.

RAILWAY ACCOUNTING OFFICERS' ASSOCIATION.—E. R. Woodson, 1116 Woodward Building, Washington, D. C. Annual convention, April 30-May 2, 1930, Hotel Roosevelt, New Orleans.

RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 1406 Packard Bldg., Philadelphia, Pa. Annual meeting, November, 1929, Hotel Stevens, Chicago.

RAILWAY CAR DEPARTMENT OFFICERS' ASSOCIATION.—(See Master Car Builders' and Supervisors' Association.)

RAILWAY CLUB OF PITTSBURGH.—J. D. Conway, 515 Grandview Ave., Pittsburgh, Pa. Regular meetings, 4th Thursday in each month, except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.—Edward Wray, 9 S. Clinton St., Chicago. Meets with Association of Railway Electrical Engineers.

RAILWAY EQUIPMENT MANUFACTURERS' ASSOCIATION.—F. W. Venton, Crane Co., 836 S. Michigan Ave., Chicago. Meets with Traveling Engineers' Association.

RAILWAY FIRE PROTECTION ASSCOIATION.—R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md. Annual meeting, October 15-17, 1929, Toronto, Canada.

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—J. D. Conway, 1841 Oliver Bldg., Pittsburgh, Pa. Meets with Mechanical Division and Purchases and Stores Division, American Railway Association.

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, 30 Church St., New York. Meets with Telegraph and Telephone Section of A. R. A., Division I.

RAILWAY TREASURY OFFICERS' ASSOCIATION.—L. W. Cox, 1217 Commercial Trust Bldg., Philadelphia, Pa. Annual meeting, September 18-20, 1929, Royal York Hotel, Toronto, Ont., Canada.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—T. F. Donahoe, Gen Supvr. Road, Baltimore & Ohio, Pittsburgh, Pa. Exhibit by Track Supply Association. Next convention, Sept. 19-21, 1929, Stevens Hotel, Chicago.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings 2nd Friday in month, except June, July and August.

SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmunds, West Nyack (Rockland Co.), N. Y. Meets with A. R. A. Signal Section.

SOUTHEASTERN CARMEN'S INTERCHANGE ASSOCIATION.—Clyde Kimball, Inman Shops, Atlanta, Ga. Meet semi-annually.

SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.—A. T. Miller, P. O. Box 1205, Atlanta, Ga. Regular meetings, 3rd Thursday in January, March, May, June, September and November, Ansley Hotel, Atlanta.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—R. G. Parks, A. B. & A. Ry., Atlanta, Ga.

SUPPLY MEN'S ASSOCIATION.—E. H. Hancock (Treasurer), Louisville Varnish Co., Louisville, Ky. Meets with A. R. A. Div. V. Equipment Painting Section.

TRACK SUPPLY ASSOCIATION.—L. C. Ryan, Oxweld Railroad Service Co., 80 E. Jackson Blvd., Chicago. Meets with Roadmasters' and Maintenance of Way Association.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, 1177 East 98th St., Cleveland, O. Annual meeting, September 24-27, 1929, Hotel Sherman, Chicago. Exhibit by Railway Equipment Manufacturers' Association.

WESTERN RAILWAY CLUB.—W. J. Dickinson, 189 West Madison St., Chicago. Regular meetings, 3rd Monday each month, except June, July and August.

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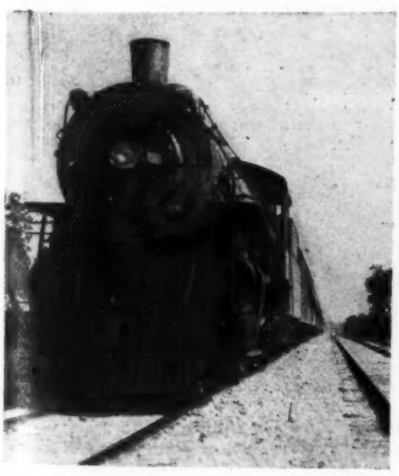

Atlantic Coast Line Photo

On the Atlantic Coast Line

Traffic

The Cleveland & Buffalo Transit Company has opened a new million-dollar steamboat terminal at Buffalo, N. Y. The new terminal is at the foot of Erie street. The main structure is 810 ft. long and 207 ft. wide.

The Southern has opened, at Chattanooga, Tenn., a new automobile delivery and receiving station. It is at Thirteenth and Cowart streets, near the center of the automobile trade. The covered shed is 30 ft. wide and 385 ft. long.

The Transcontinental Air Transport has established an information booth with an attendant, in the train concourse of the Union station at Chicago. Chicago connections can be made with T. A. T. planes at Indianapolis via the Pennsylvania.

Train service over the new line of the Southern Pacific between Klamath Falls, Ore., and Alturas, Cal., which was completed on July 15, was advertised to start on August 1. This new construction provides a through route via the Nevada-California-Oregon between the Southern Pacific Portland main line at Klamath Falls and its Ogden main line at Fernley, Nev.

The Chicago & Alton has been granted permission by the Illinois Commerce Commission to discontinue a daily passenger train each way between Springfield, Ill., and Roodhouse and another daily train each way between Roodhouse and Louisiana, Mo. The Commission denied the application to discontinue two trains between East Hardin, Ill., and Carlinville and two between Roodhouse and Jacksonville.

F. A. Leland, for the carriers in the Southwestern Freight Bureau, has filed with the Interstate Commerce Commission a concurrence in a petition filed by W. M. Hough, traffic manager of the Mississippi-Warrior Service of the Inland Waterways Corporation, seeking a postponement of the effective date of the Commission's recent order in Ex Parte No. 96, requiring the establishment of through routes and joint rates between the railroads and the federal barge line. Mr. Leland says the work of preparing, compiling and printing the tariffs cannot be accomplished within the time allowed by the order.

N. Y. C. Stations Discontinued

The New York Public Service Commission has recently permitted the discontinuance of the Lewiston Heights station of the New York Central. A motor coach operating between Niagara Falls, Lewiston and Youngstown, passes the station hourly and honors railroad tickets while no freight or express was being handled at the station.

The Warners station of this road, nine miles west of Syracuse, is also to be discontinued under an order of the Public Service Commission. The Commission finds that there is no occasion for passenger service as passenger receipts in 1928 were but $1.70. A trucking service of the railroad will handle freight and take it to the station at Memphis and the caretaker who will keep the station open two hours a day, will handle incoming freight. Express shipments will be handled from the Memphis station.

All Trains Made Their Time

During June 560 passenger trains were operated on the St. Louis division of the Pennsylvania of which 548, or 97.9 per cent, were on time at the final terminal, and 560, or 100 per cent, made schedule time or better over the division. On July 9 the same division had operated 710 passenger trains for a period of 38 days with a 100 per cent performance.

Permit System for Grain to Houston

In order to forestall a heavy influx of grain, which would tax the Houston, Tex., grain elevators, the permit system for the movement of grain from interior points to Houston was placed in effect on July 26. Under this system, grain shippers are given the privilege of consigning their grain to Houston upon showing credentials indicating that they have booked space on a steamer for immediate export. Houston interests, on July 23, asked that the plan be made operative in order to forestall the sudden diversion of grain to Houston due to an embargo at Galveston, which became effective on July 20. It was felt that since the accumulations of wheat shipments for export through Houston (now at port or in transit with no definite outlet) have increased so rapidly, the congestion stage might soon be reached and thereby cripple transportation facilities so as to seriously interfere with the free movement of other traffic through this port. It was realized that such a situation so closely preceding the seasonal cotton movement, should be averted.

New Grain Rates Not Effective This Year

Apparently for the purpose of quieting the anxiety of grain interests as to whether there might not be another important change in western grain rates during this year's shipping season, the Interstate Commerce Commission on July 25 issued a notice saying that irrespective of the date of its expected decision as the result of the western grain investigation, such new rates as may be ordered cannot be made effective before January 1, 1930, and probably not until a later date.

The notice said that inquiries had been made regarding the probable date of a decision in Docket No. 17,000, Part 7,

and the probable date of the effectiveness of whatever new rates may result from the decision. In answer to these inquiries the commission has authorized the statement that the grain case has been and is receiving active consideration and a report will be issued at the earliest possible date. There has been a general understanding that the commission was trying to reach a decision in this proceeding, to the arguments in which it recently devoted three weeks, and some fears had been expressed that a new basis of rates might be made effective in the middle of the shipping season, which might seriously affect calculations as to transactions for future delivery.

Livestock Prices and Freight Rates

Net proceeds to the seller of live stock at shipping point have been gradually increasing for the past five years, with the result they were greater in 1928 than in any of the other four preceding years, according to a bulletin made public by the Bureau of Railway Economics as a result of a study of prices of livestock and their relationship to transportation costs, covering five years 1924 to 1928, inclusive. The study embraces the sales of 23,377 carloads of live stock shipped from 4,384 points located in 40 states.

"There was," the bulletin stated, "a consistent downward trend in the proportion of the livestock purchaser's dollar absorbed by freight charges and other costs of distribution, and a consistent upward trend in the proportion received by the seller at shipping point during the five years, 1924 to 1928. The proportion of the purchaser's dollar absorbed by freight charges dropped from 5.6 cents in 1924 to 3.6 cents in 1928, a decrease of 36 per cent. That absorbed by other costs of distribution dropped from 3 cents in 1924 to 2 cents in 1928, a decrease of 33 per cent. The proportion of the purchaser's dollar received by the seller at shipping point rose from 91.4 cents in 1924 to 94.4 cents in 1928, an increase of about 3 per cent.

"The average price paid by the purchaser at the markets, for all live stock combined, rose gradually from $7.36 per hundred pounds in 1924 to $11.15 in 1928. The average amount absorbed by freight charges was 41 cents per hundred pounds in 1924 and 40 cents in 1928, while other costs of distribution were 22 cents per hundred pounds in 1924 and 23 cents in 1928. The total marketing cost amounted to 63 cents per hundred pounds in both years. Average net proceeds to the seller at shipping point rose from $6.73 in 1924 to $10.52 in 1928. Net proceeds to seller is the price paid at market less marketing costs, that is, freight charges and other costs of distribution.

"Marketing costs being the same in 1924 and 1928, the increase in livestock prices paid by the purchaser must have been due to other causes, such as quality, condition of stock, and general marketing conditions.

"Since the increase in the price of all livestock paid by the purchaser and the increase in the net proceeds to the seller for the period were exactly the same, with no change in total marketing costs, the seller was the beneficiary of the increase in average price. The differences in price per hundred pounds paid by the purchaser for cattle and calves from the different states varied, during the four years 1924 to 1928, from over 35 to 500 times the differences in the combined freight charges and other costs of distribution."

I. C. C. Scrutinizes Extra-Fare Practices

Practices of the eastern railroads in connection with the maintenance of extra fares on some of their faster and better passenger trains between important cities will be considered at a hearing assigned by the Interstate Commerce Commission for October 15, before Examiner M. L. Boat. The hearing is on Fourth Section Application No. 13,871, filed by C. A. Fox and C. M. Burt, as tariff publishing agents, on behalf of the Baltimore & Ohio, the Delaware, Lackawanna & Western, the Erie, the Lehigh Valley, the New York Central, the West Shore, The Pennsylvania, the Cleveland, Cincinnati, Chicago & St. Louis, the Grand Trunk, the Michigan Central, the New York, Chicago & St. Louis and the Wabash, "for authority to maintain extra fares on fast trains operating between points on the lines of said companies in the states of New York, New Jersey, Delaware, Pennsylvania, Maryland, Ohio, Michigan, Illinois and Indiana; also St. Louis, Missouri and Windsor, Ontario, without observing the aggregate of intermediates provision of the fourth section of the interstate commerce act."

The provision referred to prohibits, except by authority of the commission, the charging of "any greater compensation as a through rate than the aggregate of the intermediate rates, but the railroads have taken the position, that it did not apply because the services rendered on the extra-fare trains were different from those on the ordinary trains on which it is possible to ride between the same termini for a sum of intermediate locals less than the through fare with an extra fare added. The matter has been under discussion with the commission's Bureau of Traffic; and Division 2 of the commission, it is understood, has ruled informally that the extra fares are in contravention of the fourth section. The railroads then decided to file applications for relief and the matter was assigned for hearing.

As the extra fare plan arose from the competition between the railroads and the extra fares were to offset differences in running time via competing lines it has not been the practice to apply them between intermediate points where there was no competition and this has made it possible to make many combinations of intermediate locals less than through rates.

As the commission is habitually very sparing in its issuance of orders granting relief from this provision of the fourth section it has been suggested that some of the extra fare tariffs may be cancelled in cases where there is very little difference between the service available by the extra-fare trains and other trains.

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Air-Rail Passengers Detraining at Port Columbus, Ohio

The Airway Limited of the Pennsylvania discharging T. A. T. passengers after the first leg of their transcontinental journey. The train is seen in the background while passengers are proceeding under the canopied walkway to the waiting planes. At lower right is the trainshed just as the Airway Limited arrived.

Foreign Railways

International Travelers from Britain

During the three-quarters of a century between 1852 and 1927 the number of railway passengers between England and the continent of Europe increased from 156,222 in the former year to 2,185,750 in the latter, according to statistics recently published by the railways of Great Britain.

L. N. E. Builds New Yard

The London & North Eastern of Great Britain has completed a new freight classification yard at March, Cambridgeshire, England, according to recent reports made public by the United States Department of Commerce. The yard is equipped to handle 1,000 cars a day and is of the hump design with remote control switches, electrically operated from switch towers.

Selenium Signal to Be Tried in England

An apparatus for conveying an indication from the roadside to a moving vehicle, the distinctive feature of which is the action of a ray of light on a selenium cell, is to be tried on the Great Western of England. The apparatus is that of "Radiovisor, Limited". Whether or not the scheme includes automatic train control, or is simply for producing a visual or audible signal in the cab, is not stated.

More Steel Ties To Be Used on British Railways

Other British railways are purchasing steel ties for installation on their lines following the example of the Southern earlier in the year, according to recent reports to the United States Department of Commerce. The London Midland & Scottish, the report continues, has placed an order with the United Steel Companies, Ltd., for between 500 and 600 tons of pressed steel railways ties of the "Sandberg" heavy type. The London & Northeastern has also placed a similar order for 500 tons.

First Pullman Cars in Spain

The first Pullman-type cars to be used in Spain were recently placed in daily service between Granada and Seville, according to reports published by the United States Department of Commerce.

The service to which the new equipment is at present assigned is in connection with an exposition at Seville. Two parlor cars leave Malaga at 6:00 p. m., and two others are scheduled out of Granada at 4:25 p. m. These trains meet at Bobadilla where the equipment is combined into a single train for Seville. The four cars leave Seville in one train at 8:00 a. m. and are switched at Bobadilla into separate trains for Malaga and Granada. Extra fares amounting to a 40 percent increase over the regular passenger rates are charged for parlor car accommodations.

Leipzig Trade Fair

The Leipzig Trade Fair will be held August 25-31, inclusive. This Fair, which is approaching its seven hundredth anniversary, attracts exhibitors from practically every kind of industry known from nearly all of the countries of the world. At the spring fair held this year, more than one hundred companies from the United States exhibited their products. One of the features of the Leipzig Trade Fair for a number of years has been the exhibits of machine tools and railroad equipment. The Leipzig Trade Fair has its New York office at 11 West Forty-Second street.

Private Operation of Dutch East Indies Lines Proposed

W. F. Staargaard, general manager of the Dutch East Indian State Railways, has published a pamphlet advocating the formation of a private company for the operation of these government railway lines, according to recent reports to the United States Department of Commerce.

The pamphlet proposes that an independent commercial concern in the form of a stock company be created to take over the management of the railroads. In this corporation the state would receive stock to the full book value of the railroad property relinquished. The Department of Commerce report further states that there has, of late, been considerable agitation in this colony for private management of government railways.

British Roads Declare Interim Dividends

Interim dividends of British railways have been in excess of expectations, according to recent reports from London. The London, Midland & Scottish and the Great Western disbursements exceeded those of last year, while the Southern and the London & North Eastern maintained last year's rates.

The L. M. S. declared a two per cent dividend as against 1¼ per cent last year and thus returned to the same rate as was used in 1927. Likewise the Great Western increased its 1928 rate of 1½ per cent to 2¾ per cent for the present disbursement. The Southern is paying 2½ per cent on preferred and ordinary shares, and the L. N. E. four per cent on its first preferred stock, the same as last year in both instances.

European Cartel To Supply Steel Ties to South Africa

South Africa's railway administration is reported to have placed a large order for steel ties with the International Association of Steel Manufacturers, which consists of firms in France, Germany and Belgium-Luxemburg, the Department of Commerce is informed by its office in Johannesburg.

The order in detail, which amounts to 1,105,000 ties, is as follows: 67,000 for 80-lb. rail; 935,000 for 60-lb. rail; 3,000 for 35-lb. rail; all three foot six inch gage. The placing of this sizeable order, the announcement concludes, is regarded with special interest in view of the rather definite policy of the railway administration favoring the use of steel in lieu of native wood ties, as expressed in the latest annual report of the General Manager of Railways and Harbours Administration, and later in a special committee hearing.

Cornish Riviera Express Silver Anniversary

The Great Western of Great Britain recently issued an illustrated booklet in connection with the celebration of its Cornish Riviera Express' silver anniversary. The first Cornish Riviera Express left Paddington station, London, at 10:10 a. m. July 1, 1904, while its return train left Penzance at 10 a. m. the same day. The former made the run to Penzance in seven hours while the latter made the run in the opposite direction in seven minutes less time. Its main feature at the time was the inauguration of non-stop runs between London and Plymouth. Present schedules call for the train's departure from London at 10:30 a. m. and arrival in Penzance at 4:50 p. m. In the return direction the train leaves Penzance at 10 a. m. and arrives at Paddington at 4:45 p. m.

To celebrate this twenty-fifth anniversary of its inauguration, the train has been equipped with entirely new rolling stock. This new equipment consists of 13 coaches for each train, all of modern design and construction.

The booklet describes in detail the history of the famous train and includes many illustrations in connection therewith. Comparative data on changes in equipment and speed of the Cornish Riviera Express throughout the quarter century of its life are also presented.

Rail-Postal C. O. D. Plan in Great Britain

Progress of the plan whereby Great Britain's postal cash-on-delivery system of parcel handling was extended to include consignments by rail is outlined in a recent issue of the Railway Newsletter, official publicity organ of the British railways. Results of the initial 12-month experimental period are set forth.

During the quarter ending September 30, 1928, a total of 11,915 packages were handled under the plan. The number was 12,346 for the quarter ending December 31, and 14,417 for the first quarter of 1929. The survey points out that the "ability to send goods of any weight as cash-on-delivery consignments at the favorable rates quoted by the railways for certain commodities, coupled with the numerous express trains which give overnight deliveries, will result in increased business all round when farmers, mer-

chants and the public alike realize that the scheme is really very simple and worthy of a trial."

Under the plan parcels are billed with a combined label and receipt form attached. This form is obtained from the post office. One portion of the label is addressed to the railway agent at the delivering station and another portion carries the names of both consignor and consignee. When the railway charges are paid the receipt section of the label is sent to the consignee as a C. O. D. registered letter and delivered by the postman on payment of the amount specified therein. Presentation of this receipt received from the postman releases the goods for the consignee.

National Transport Convention At Mexico City

A national transport convention, sponsored by the Mexican Confederation of Chambers of Commerce, will be held at Mexico City from August 5 to 8. The object of the convention is to study the various problems confronting rail and water transportation agencies in the Republic from an economic, legal and efficiency point of view and to adopt such resolutions as will result in benefit to these national activities.

A detailed study will be presented to show to what extent the various regions in Mexico have suffered or benefited by the increase in land and water transportation rates during the past fifteen years. Another analysis will be made to show what consequences a reduction in the freight tariff covering certain commodities, the production, manufacture or sale of which is susceptible to increase, will have on the various parts of the country.

An investigation of the existing deficiencies in the national transport system with special reference to timetables, connections, rapidity of service, scarcity of rolling stock, special equipment, stations, warehouses, etc., will also be included along with an examination of the existing laws and regulations governing the railroads and the merchant marine, in order to ascertain the extent of their influence towards handicapping the expansion of commercial, agricultural and mining activities. Finally a study of any obstacles that may exist against a downward revision of the freight tariff will be made.

German Railway Company 1928 Returns

Gross receipts equivalent to $1,222,730,000, operating expenses of $1,017,733,000 and net receipts of $204,958,000, were reported by the German Railway Company for the year ending December 31, 1928, according to statistical reports recently issued from Berlin. The foregoing figures compare respectively with 1927 gross receipts equivalent to $1,194,314,000, operating expenses of $985,636,000 and net receipts of $208,679,000.

It will thus be seen that 1928 revenue increases of $28,416,000 over 1927 was attended by a $32,138,000 increase in operating expenses and therefore the $3,721,000 reduction in net resulted. Figures comparing receipts, expenditures and net receipts of the past four years are reproduced in the following table:

German Railway Company Receipts, Expenses and Net Receipts, 1925-1928

	(000 omitted)		
	Receipts	Expenses	Net Receipts
1928	$1,222,730	$1,017,773	$204,958
1927	1,194,314	985,636	208,679
1926	1,076,170	872,302	203,867
1925	1,106,553	942,028	164,525

Passenger traffic accounted for $342,062,100 of the 1928 gross receipts while freight business yielded $776,506,800 and other receipts $104,161,500. Respective 1927 figures on the distribution of receipts are: Passenger $326,965,200; freight $764,656,800; other receipts $102,692,100. These comparisons reveal that 1928 saw an increase in each class of revenues, the increases being $15,097,000 in passenger receipts and $11,850,000 in freight receipts.

The profit and loss account shows that $41,048,400 was carried forward from 1927 and this, combined with the 1928 net receipts, produced a credit of $246,006,000 in the 1928 profit and loss account. Charges to profit and loss during 1928 amounted to $204,933,900 and thus left a balance of $41,072,100 to be carried forward into 1929 or $23,700 more than the 1928 profit and loss account had received from 1927.

The largest charge to profit and loss in both 1927 and 1928 was interest. This amounted to $129,188,700 in the latter year, as compared with 1927 interest charges of $131,250,600. The total 1927 charges to profit and loss amounted to $207,375,000 or $2,441,100 more than the 1928 total discussed in the preceding paragraph.

Freight trains during the year performed 247,232,505 train kilometers and passenger trains 394,580.735 train kilometers. A total of 2,009.445.671 passengers were carried and 480,966.149 metric tons of freight hauled in 1928. Third and fourth class passengers predominated, there being 917,416,728 of the former and 987,610,327 of the latter. There were 643,612 first class passengers and 103,775,004 second class. During the latter part of last year, as announced in the *Railway Age* of October 13, 1928, the four-class passenger service was abolished in favor of a two-class plan, the first and fourth classes being discontinued.

FEATHERWEIGHT CONCRETE ROOF SLABS:—A 36-page catalogue describing and illustrating featherweight concrete insulating roof slabs has been published by the Federal Cement Tile Company, Chicago. These slabs are manufactured from concrete made up of Portland cement and Haydite, the latter being a burned shale. The four principal sections in the catalogue include general information concerning the concrete slabs; detailed drawings of the slabs; specifications and essential data covering the slabs; and detailed drawings of featherweight nailing concrete roof slabs.

Equipment and Supplies

Locomotives

THE NASHVILLE, CHATTANOOGA & ST. LOUIS is said to be contemplating the purchase of five locomotives.

THE CHILEAN STATE RAILWAYS have ordered twelve 4-8-2 type locomotives from the Baldwin Locomotive Works. Inquiry for this equipment was reported in the *Railway Age* of May 18.

THE REDE DE VIACAO CEARENSE (Brazil) has ordered three 2-8-2 type locomotives from the Baldwin Locomotive Works. Dr. Demosthenes Rockert is director at Fortaleza, Cerea, Brazil.

THE NORTHERN PACIFIC has ordered eleven 2-8-8-4 type locomotives from the Baldwin Locomotive Works. Inquiry for this equipment was reported in the *Railway Age* of June 29.

Freight Cars

THE WABASH is inquiring for 100 steel hopper car bodies of 50 tons' capacity.

THE BOSTON & MAINE has under consideration the purchase of 1,000 box cars.

THE BESSEMER & LAKE ERIE is inquiring for 25 steel gondola cars of 70 tons' capacity.

THE CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC has ordered 15 caboose cars from the Bettendorf Company.

THE CUDAHY PACKING COMPANY has ordered bars and channels for 50 underframes which it will construct in its own shops. Inquiry for the underframes was reported in the *Railway Age* of July 20.

THE GENERAL CHEMICAL COMPANY has ordered 21 tanks for tank cars of about 50 tons' capacity and 15 complete tank cars of 70 tons' capacity from the American Car & Foundry Company. Inquiry for this equipment was reported in the *Railway Age* of June 29.

Signaling

THE ERIE has contracted with the Union Switch & Signal Company for the installation of an electro-mechanical interlocking at DV Tower, Falconer, N. Y.; 22 mechanical levers and four electric.

THE ATCHISON, TOPEKA & SANTA FE has ordered from the Union Switch & Signal Company an electric interlocking for a drawbridge at San Joaquin, Cal.; five working levers.

THE MISSOURI-KANSAS-TEXAS has ordered from the Union Switch & Signal Company material for the installation of automatic block signals between Granger, Tex., and Sparks, 14½ miles. The order includes 58 color-light signals, style R.

THE PENNSYLVANIA has ordered from the Union Switch & Signal Company material for an electro-pneumatic interlocking, 36 working levers, for installation at Newark Bay drawbridge, near Greenville, N. J.

THE SOUTHERN PACIFIC has ordered from the Union Switch & Signal Company material for the installation of dispatcher-control on its line between Beeville, Tex., and Skidmore, 11 miles. This system will be operated in connection with APB signaling. The order includes 23 semaphore signals, four switch machines, 130 relays and other material.

THE MISSOURI PACIFIC has placed an order with the General Railway Signal Company covering materials for a direct-current electric interlocking plant at Hoxie, Ark. The order includes one 40-lever Model 2 unit lever type electric interlocking machine having 35 working levers, 16 Model 5 switch machines, 23 Model 2A and type G color-light signals, 75 type K and power-off relays and other miscellaneous materials.

Machinery and Tools

THE NEW YORK CENTRAL has ordered two 25-ton locomotive cranes from the Industrial Brownhoist Corporation.

Iron and Steel

THE MICHIGAN CENTRAL has ordered 300 tons of structural steel for miscellaneous bridge work from the American Bridge Company.

THE LOUISVILLE & NASHVILLE has ordered 800 tons of structural steel for an addition to its office building at Louisville, Ky., from the Louisville Bridge & Iron Company.

THE NORFOLK & WESTERN has ordered 1,200 tons of structural steel for miscellaneous bridge work from the Virginia Bridge & Iron Company and 875 tons from the Mt. Vernon Bridge Co.

* * *

The Southern Pacific-Rock Island "Apache" Near Tularosa, N. M.

Supply Trade

James A. Galligan, sales manager of the **Union Railway Equipment Company,** Chicago, has resigned effective August 1.

The Landis Machine Company, Waynesboro, Pa., has opened an office in the Marshall building, Cleveland, Ohio. in charge of **J. T. Benchoff,** district manager.

A. R. Whitehorn, resident manager of the **L. S. Brach Manufacturing Corporation** with headquarters at Chicago, has resigned to become associated with the commercial department of the **General Railway Signal Company** at Rochester, N. Y.

The Westinghouse Electric & Manufacturing Company has bought, subject to confirmation by the City Commission, at public auction from the City of Newark, N. J., 22 acres of land at Haynes avenue and the State Highway in the Port Newark development. The company plans to build on the site a warehouse and a service station to serve the northern New Jersey industrial area.

R. C. Colton has been appointed traffic agent at the new plant of the **Western Electric Company** now being erected at Baltimore, Md. Mr. Colton will be located at the Court Square building, Baltimore, September 1. The division traffic agency at Atlanta will be discontinued September 1, and the traffic work formerly handled by Division Traffic Agent **Hankins** will be taken over by **C. P. Crotty,** division traffic agent at New York.

The **Morrison Railway Supply Corporation,** Buffalo, N. Y., is constructing a plant at Chicago for reconditioning switch points, cropping rails and manufacturing welding rods and has opened an office at 1534 McCormick building in that city. This company has taken over the switch point and frog reclamation department of the **Inter-State Car & Foundry Company,** Indianapolis, Ind. **Geo. V. Diver,** president of the latter company, has also been appointed manager of the frog and switch division of the Morrison Railway Supply Corporation.

Charles E. Eveleth, vice-president of the **General Electric Company,** in the manufacturing department has been transferred to the engineering department as vice-president and will be associated with **E. W. Allen** in the direction of that department's affairs. Mr. Eveleth will give special attention to the problems of the designing departments and works laboratories. Mr. Allen will direct his attention to the work of the commercial engineering, the contract service and district engineering departments. Charles E. Eveleth has been in the employ of the General Electric Company since 1899. In September, 1922, he was appointed assistant manager of the Schenectady works and the following January he was appointed works manager; he held this position until 1927 and since that time served as vice-president.

R. W. Procter, representative of the Black & Decker Manufacturing Company has resigned to become general sales manager of the **Van Dorn Electric Tool Company** with headquarters at Cleveland, Ohio. **J. M. Beggs** of the sales department of the latter company has been placed in charge of the advertising department at Cleveland.

J. N. Ebling, for the past 14 years treasurer of the **Railway Specialties Corporation,** 50 Church street, New York, has been elected president; **J. A. Carmody,** for several years past, superintendent of electric equipment on the New York Central has been elected a vice-president of the corporation; **H. M. Fetterolf,** who has been associated with the corporation in its sales department for the past nine years, has been elected a vice-president and **Fred Roth,** formerly with the sales department of the Ohio Brass Company, has been appointed sales representative of the Railway Specialties Corporation.

Harold Smith, general solicitor of the **Westinghouse Electric & Manufacturing Company** has been elected vice-president. Mr. Smith's office will be in the Westinghouse building, 150 Broadway, New York City. Harold Smith

Harold Smith

entered the legal department of the Westinghouse Company in 1919 and was appointed general solicitor in 1926. Prior to that time, he was engaged in the practice of law in Chicago, being a member of the firm of Glennon, Cary, & Walker. He is a graduate of Northwestern University (LL.B in 1905), and of Yale (LL.M in 1906), and also studied at the University of Chicago.

Albert E. Ferguson, in charge of the St. Louis office of the **National Lumber & Cresoting Company,** Texarkana, Ark.-Tex. has been appointed general sales manager. Mr. Ferguson will maintain offices in the general office at Texarkana and also at St. Louis, Mo. He is a graduate of Washburn College, Topeka, Kan., and holds a commission as captain in the Field Artillery Reserves of the United States Army. In 1920 Mr. Ferguson entered sales work at St. Louis, and remained in that work for several years; subsequently serving with the National Lumber & Creosoting Company in charge of its St. Louis sales office until his recent appointment as general sales manager.

Albert E. Ferguson

National Steel Car Corp.

The financial statement of the National Steel Car Corporation Limited, Hamilton, Ont., for the fiscal year ended June 30, 1929, reveals an operating net for the year of $602,229, as against $534,849 in the preceding year. Deduction of bond interest at $28,558 and depreciation at $212,135, left a balance of $361,536, which was equal to $2.78 per share on the 130,000 shares of no-par common stock outstanding at the end of the fiscal year. Dividends on the common paid out during the year amounted to $130,000, and left a balance to be carried forward of $231,536.

Working capital is shown at $515,316, as compared with $1,079,958 in the preceding financial report, reflecting bond redemptions during the year amounting to $860,000. The balance sheet reflects the greatly increased amount of business received by the company, with total assets shown at $10,725,594, as compared with $4,945,470 in the preceding statement.

The Diesel Engine Manufacturers' Association

In order to promote and extend the use of Diesel power in America twelve of the leading builders of Diesel engines in the United States have organized the Diesel Engine Manufacturers' Association, with headquarters at 30 Church street, New York. The association is comprised of the New London Ship & Engine Works, Electric Boat Company; Worthington Pump & Machinery Corporation; Fulton Iron Works Company; Ingersoll-Rand Company; Fairbanks, Morse & Co.; Nordberg Manufacturing Company; I. P. Morris & DeLaVergne, Inc.; Winton Engine Company; Cooper-Bessemer Corporation; McIntosh & Seymour Corporation; Busch-Sulzer Bros. Diesel Engine Company, and Hooven, Owens, Rentschler Company. Henry R. Supthen, president of the Electric Boat Company, is president of the association; E. T. Fishwick, vice-president of the Worthington Pump & Machinery Corporation, is vice-president, and Harlan A. Pratt, manager, oil and gas engine department, of the Ingersoll-Rand Company, is secretary and treasurer. M. J. Reed, located at 30 Church street is research engineer.

American Locomotive Company Semi-Annual Statement

Net profit of $3,075,939, after depreciation and federal taxes, was reported by the American Locomotive Company and its subsidiaries for the six months ending June 30, according to the semi-annual statement of operations released on July 25. This compares with a net profit of $1,502,702 for the corresponding six months of 1928 and is equivalent, after preferred dividends, to $2.24 per share on the common stock as against the 20 cents per share earned in the 1928 period.

Dividends amounting to $1,347,500 on the preferred stock and $3,080,000 on the common were paid during the first half of the year. This total disbursement of $4,427,500 exceeded the six months' net profit by $1,351,561 and thus resulted in a distribution of undivided profits equivalent to the latter amount.

The consolidated income statement for the six months follows:

Consolidated Income Account of the AMERICAN LOCOMOTIVE COMPANY and its subsidiaries.
(Including Railway Steel-Spring Company and Montreal Locomotive Works, Limited)
For the six months ended June 30, 1929.

Net earnings from all sources:—		
After deducting manufacturing, maintenance and administrative expenses	$4,099,090	
Depreciation on plants and equipment	743,591	
		$3,355,500
Accrual for Federal taxes		279,560
Available Profit for the six months		$3,075,939
Dividends—Preferred stock	$1,347,500	
Common stock	3,080,000	4,427,500
Deficit after Dividends		$1,351,560

Trade Publication

QUICKARD CEMENT.—A 16-page booklet issued by the Ash Grove Lime & Portland Cement Company, Kansas City, Mo., describes the savings in time which have been effected by the use of the quick-setting cement manufactured by that company. The booklet is illustrated with views of various kinds of work on which this cement has been used and also contains the results of tests conducted in different laboratories.

Construction

$197,000,000 Involved in July Construction Activities

Railway construction operations showed unusual activity during the month of July with authorized projects reported in the *Railway Age* representing a total expenditure of more than $193,000,000, while contracts were let for approximately $4,000,000 in construction work.

The outstanding project to be given authorization during the month was the New York Central's West Side improvement in New York City, which involves the elevation and relocation of its tracks on Manhattan Island and the elimination of some 90 grade crossings including those along Eleventh avenue. This project has been estimated to cost $175,000,000. Another important project to be authorized was that of the Missouri Pacific, which plans the construction of a second main track and the raising of its old main line track between Eureka, Mo., and Lake Hills, a distance of about 10½ miles, at an approximate cost of $4,350,000. The Southern Pacific is planning a new terminal at Houston, Texas, to cost about $7,000,000. Two projects involving the expenditure of about $1,000,000 were authorized in the new bridge of the Pittsburgh & West Virginia across the Monongahela river at Belle Vernon, Pa., and the new freight yards of the Missouri-Kansas-Texas at Kansas City, Mo. The Boston & Albany will spend about $560,000 for a new engine house to be built at West Springfield, Mass.

During the month the Pennsylvania let contracts to various contracting companies amounting to an aggregate total of more than $958,000. Other outstanding contracts were let by the Chicago, Burlington & Quincy for the construction of a new grain elevator at St. Louis, to cost about $500,000, and by the Mayo & Cooks Hammock, a new line in Florida, which is being constructed at a cost of approximately $200,000.

The figure for projects authorized during July does not include the $22,000,000 improvement project of the Pennsylvania in Baltimore, Md., which was reported in the *Railway Age* late in June.

ABILENE & SOUTHERN.—This company has applied to the Interstate Commerce Commission for authority to construct an extension from Ballinger to San Angelo, Tex., 39 miles.

ATCHISON, TOPEKA & SANTA FE (Kansas City, Mexico & Orient).—Bids were closed on July 29 for the construction of an extension between Pisano, Tex., and Presidio, 73 miles. This project involves the excavation of 270,000 cu. yd. of earth, 175,000 cu. yd. of loose rock and 370,000 cu. yd. of solid rock, the placing of 2,000,000 cu. yd. of embankment and 7,000

cu. yd. of concrete, the erection of 2,500 tons of bridge steel and the driving of 90,000 lin. ft. of piling. Ninety pound rail will be laid on creosoted ties and the right of way will be fenced along its entire length. The bids also include the construction of buildings and the placing of culverts. When completed this extension will serve to connect the Orient lines in the United States and Mexico.

BOSTON & MAINE.—A contract for the construction of a 2,000-ton six-track automatic electric reinforced concrete locomotive coaling and sanding plant at Boston, Mass., has been awarded to the Roberts and Schaefer Company, Chicago. This plant will be equipped with duplicate automatic hoisting skips which will have a capacity of 150 tons per hour. The Boston & Maine has also let a contract to the same contractor for the construction of a three-track shallow pit automatic electric reinforced concrete locomotive coaling station and sanding plant at Worcester, Mass. The coaling station will have a capacity of 500 tons.

CANADIAN NATIONAL.—Bids were closed on July 22 for the construction of an extension of the St. Walberg (Sask.)-Bonnyville (Alta.) branch, 126 miles, and for the construction of an extension north from Hamlin, Sask., 32 miles.

CANADIAN PACIFIC.—A contract has been let to the F. W. Miller Heating Company, Chicago, for the installation of a boiler washing system and a direct steaming system to serve the 32 stalls of the new enginehouse at John street, Toronto, Ont. The direct steaming equipment has been designed by the Railway Engineering Equipment Company, Chicago.

CHESAPEAKE & OHIO.—A contract has been awarded to the John W. Cowper Company, Richmond, Va., for the enlargement of and re-arrangement of this company's locomotive terminal facilities at Hinton, W. Va. The improvements will include extensions to seven stalls of the present roundhouse, a new 800-ton capacity concrete coaling station, two concrete inspection pits, two locomotive washing platforms, electrically operated cinder conveyors and a new coal conveyor. A number of new buildings will be constructed including an arch brick storage building with concrete platform, sand house, foreman's office building, locomotive supply building and ice house. All the buildings, with the exception of the arch brick storage building and sand house, will be of concrete and brick construction. These two buildings will be of steel construction. The cost of these improvements will be approximately $265,000.

CHICAGO, ROCK ISLAND & PACIFIC.—Plans have been completed for the construction of a freight station at Mason and Pier streets, Omaha, Neb. The building will be made up of a two-story section, 32 ft. by 120 ft. and a covered platform, 32 ft. by 160 ft. This project also includes the construction of an island platform, 16 ft. by 350 ft., and a platform for handling automobiles and machinery.

CHICAGO & NORTH WESTERN.—A contract for the construction of a multiple track electric cinder handling plant at Council Bluffs, Iowa, has been let to the Roberts and Schaefer Company, Chicago.

DELAWARE & HUDSON.—The New York Public Service Commission has granted a petition to this company for the construction of an extension to its passing track, known as Swift's siding, in Fenton, N. Y. The extension, which will be about 2,700 ft. long, will increase the capacity of the siding from 80 cars to 145 cars.

ERIE.—This company is preparing plans and specifications for the elimination of the Oak Hill avenue crossing on its lines in Endicott, N. Y., by the elevation of its tracks and the construction of an underpass to be approximately 30 ft. in the clear, with 13 ft. headroom and sidewalks 10 ft. in width.

GREAT NORTHERN.—This company has applied to the Interstate Commerce Commission for a certificate authorizing the construction of an extension from Richey to a point in McCone county, Mont., 32 miles.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—A contract has been let to the Roberts and Schaefer Company, Chicago, for the construction of a 125-ton automatic electric locomotive coaling plant and an electric cinder handling plant at Irvine, Wis.

MISSOURI PACIFIC.—This company has purchased land between Commerce and Rector streets and Fourth street and Capitol avenue at Little Rock, Ark., for the construction of a freight station, which with attendant facilities will involve an expenditure of about $1,000,000.

MISSOURI PACIFIC.—Contracts for the construction of a second main track between Eureka, Mo., and Lake Hill, 10.4 miles, have been let to the Winston Brothers Company, Minneapolis, Minn., and the List Construction Company, Kansas City, Mo. This project, which also involves construction of a cut-off between Eureka and Jedburg, the raising of the new and old main tracks above high water and the elimination of three highway grade crossings, will involve a total expenditure of about $4,350,000.

NEW YORK, CHICAGO & ST. LOUIS.—A contract for the construction of a concrete deck for a bridge over East Fifty-fifth street, Cleveland, Ohio, and a reinforced-concrete bridge over East Eighty-ninth street in the same city at costs of $100,000 and $150,000 respectively, has been let to the Lowensohn Construction Company, Cleveland.

NEW YORK CENTRAL.—This company's plans to build an embankment from rock fill taken from its tunnel along the Hudson river near the Breakneck crossing at Storm King, N. Y., for the elimination of that crossing and the Phillipstown, crossing, have been abandoned by order of the New York Public Service Commission. A new plan which involves the construction of a lateral highway to eliminate the crossings has been submitted by the Department of Public Works. The proposed new highway will cost approximately $452,300 exclusive of land damages.

NEW YORK CENTRAL.—Estimates of cost have been approved by the New York Public Service Commission for grade crossing elimination projects of this company's lines as follows: the Durhamville-Rome highway, Rome, N. Y., estimated cost $146,200; the Irelandville crossing, south of Reading Center, N. Y., estimated cost $13,900; the Perrys and Clanceys crossings in the town of Canton, N. Y.; Hutchinson avenue and Turner street crossings, Utica, N. Y.; Echo Lake-Pines Bridge county highway in New Castle, N. Y.; and the Hinck's crossing in Williamston, N. Y.

PENNSYLVANIA.—This company has awarded construction contracts totaling $297,000 as follows: To the Ferguson & Edmondson Company, Pittsburgh, Pa., for the construction of masonry and substructure for a bridge over the Allegheny river at Oil City, Pa., to cost $132,000; to the S. & M. Contracting Company, Chicago, for grading and track work in connection with track elevation over Seventy-ninth street, to cost $65,000; to Arthur McMullen Company, New York, for the construction of an underpass and lateral highway to eliminate two grade crossings at Phelps, N. Y., to cost $57,000; to Walter S. Rae, Pittsburgh, Pa., for the renewal of a portion of the street approach to overhead bridge to Hovis Island stock yards at Thirtieth street, Pittsburgh, at an expenditure of $43,000.

PITTSBURGH, LISBON & WESTERN.—The Interstate Commerce Commission has denied this company's petition for a reconsideration of the case in which the commission denied its application for authority to construct an extension in the Youngstown, Ohio, district.

PITTSBURGH & WEST VIRGINIA.—This company has applied to the Interstate Commerce Commission for a certificate authorizing the construction of an extension from its Connellsville extension, now under construction, from Pigeon Creek Crossing to Baird, Pa., 5.77 miles, to connect with the Donora Southern and afford an entrance to the Donora industrial district.

SOUTHERN PACIFIC.—A contract has been let to the Granite Construction Company, Watsonville, Cal., for the grading for the construction of a double-track extension from Watsonville Junction, Cal., to Logan Quarry, at a cost of $55,000.

TORONTO, HAMILTON & BUFFALO.—A contract has been awarded to the Railway Engineering Equipment Company, Chicago, for the installation of a direct steaming system in its enginehouses at Hamilton, Ont.

Railway Finance

ATCHISON, TOPEKA & SANTA FE.—*Bonds of Corona & Santa Fe.*—The Interstate Commerce Commission has authorized the Corona & Santa Fe to issue one first mortgage 6 per cent bond, series A, for $850,000, to mature in 1953. The bond will be delivered to the parent company, the Atchison, Topeka & Santa Fe, in partial reimbursement for advances.

ATCHISON, TOPEKA & SANTA FE.—*Terminal Unification at Sweetwater, Tex., and San Angelo.*—The Interstate Commerce commission has authorized the Kansas City, Mexico & Orient to operate over 1.9 miles of main line and 19.7 miles of sidings and to use appurtenant facilities at Sweetwater, Tex., owned by the Pecos & Northern Texas; to operate over 3.1 miles of main line and 8.2 miles of sidings of the Gulf, Colorado & Santa Fe at San Angelo and to construct connecting tracks at both points. The Gulf, Colorado & Santa Fe, the Panhandle & Santa Fe and the Pecos & Northern Texas have been authorized to operate over 3.2 miles of main line and 3.8 miles of sidings, owned by the Orient at Sweetwater and to operate over 4.7 miles of main line and 11.7 miles of sidings owned by the Orient at San Angelo and to construct the necessary connecting tracks.

BOSTON & MAINE.—*Bonds.*—The Interstate Commerce Commission has authorized this company to issue $2,400,000 of 5 per cent mortgage bonds, series HH, in partial reimbursement for capital expenditures. The bonds will mature on March 1, 1932. The issue will be sold to Nathan L. Amster and the Amster Investing & Trading Association and to other holders of unstamped first preferred stock at par, the stipulation being that the railroad will pay all accumulated dividends on the unstamped first preferred stock. To the holders of this stock will be offered for purchase bonds of approximately the amount of dividend arrears due them, the arrangement being that Amster and the Amster Association will purchase any of the bonds not taken by individual subscribers.

BALTIMORE & OHIO.—*Western Maryland Anti-Trust Case.*—Counsel for the Interstate Commerce Commission, Thomas P. Healy and W. H. Bonneville, in a brief submitted to the commission, recommended that it find that the effect of the acquisition by the Baltimore & Ohio of stock of the Western Maryland may be to substantially lessen competition between it and the Western Maryland and to restrain commerce in certain sections and communities, in violation of Section 7 of the Clayton act, and that an order be issued requiring the B. & O. "to cease and desist from further violations and to divest itself of the stock now unlawfully held."

CENTRAL VERMONT. —*Sale.*—This company was sold at a receiver's sale at St. Albans, Vt., July 29 to the Central Vermont Railway, Inc., a subsidiary of the Canadian National, which was the only bidder. The purchase price was $22,000,000.

CENTRAL WEST VIRGINIA & SOUTHERN. —*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon the operation of its line from a connection with the Western Maryland at Hendricks, W. Va., to Armentrout, 29.5 miles.

CHICAGO, ROCK ISLAND & PACIFIC.—*Equipment Trust.*—The Interstate Commerce Commission has authorized this company to assume obligation and liability in respect of $9,450,000 of its equipment trust 4½ per cent certificates of 1929, series P. The issue will mature in installments from 1930 to 1944 and will be sold as a result of competitive bids to a syndicate headed by the Bankers Company at 94.697 which will make the cost to the railroad approximately 5.367 per cent. Bankers are offering the issue to the public at prices to yield from 5.35 per cent to 5.15 per cent, according to the date of maturity.

ERIE.—*Equipment Trust.*—The Interstate Commerce Commission has authorized this company to assume obligation and liability in respect of $8,370,000 of its 1929 4½ per cent equipment trust certificates. The issue will be sold to the highest bidder, a syndicate headed by the First National Corporation of Boston, at 94.847, which will make the average annual cost to the railroad approximately 5.3667 per cent. The issue will mature in installments from 1930 to 1944.

GREENBRIER, CHEAT & ELK.—*Acquisition.*—This company has applied to the Interstate Commerce Commission for authority to acquire three lines from the West Virginia Midland; from Bergoo to Webster Springs, 12 miles, and two lines from Webster Springs along the Elk river, 2 and 5 miles long respectively. The company also asked authority to issue $650,000 of 5 per cent bonds representing the purchase price, the principal and interest to be assumed by the Western Maryland, which will operate the lines.

INDIANA NORTHERN.—*New Directors.*—W. A. Weed, T. A. Freeman, R. C. Rolfing, L. G. Couter and H. F. Shider of South Bend, Ind, have been elected directors to serve until April, 1930.

LIME ROCK.—*Bonds.*—The Interstate Commerce Commission has authorized this company to extend from July 1, 1929, to February, 1940, the maturity of $400,000 of first mortgage bonds. The rate of interest heretofore has been 4 per cent, but it will be increased to 5 per cent during the period of extension of maturity.

NEW YORK, NEW HAVEN & HARTFORD. —*Restriction on Dividend Rate Removed.* —The Massachusetts Department of Public Utilities on July 25 certified that this company had complied with legal requirements with respect to making up book losses from the sale or writing down of securities, so that dividends in excess of 5 per cent of its common stock, heretofore prohibited by law, may now be legally declared.

NEW YORK, ONTARIO & WESTERN.—*Equipment Trust.*—The Interstate Commerce Commission has authorized this company to assume obligation and liability in respect of $660,000 of 5 per cent equipment trust certificates, which will mature in installments from 1930 to 1939. The issue will be sold to the highest bidder, the Chase Securities Corporation and Freeman & Company, at 97, making the average annual cost to the railroad approximately 5.696 per cent.

SOUTHERN.—*Motion to Dismiss Anti-Trust Complaint Denied.* — The Interstate Commerce Commission on July 29 announced that it had denied the motion filed by the Southern that it dismiss, for want of jurisdiction, its complaint alleging violation of the Clayton anti-trust law in acquisition of stock of the Mobile & Ohio and the New Orleans & Northeastern. The Southern in argument before the commission on its motion, contended that the Clayton act was not retroactive in effect.

SPOKANE, COEUR D'ALENE & PALOUSE.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon operation over about a mile of line, part of which is by trackage rights over the Spokane United Railways in Spokane, Wash.

ST. LOUIS-SAN FRANCISCO.—*Abandonment.*—Examiner Jameson of the Interstate Commerce Commission, in a proposed report, has recommended that the commission permit the abandonment of the line between Brownwood and Aquilla, Mo., 9.95 miles, the line from Bloomfield to Campbell, Mo., 34.8 miles, and the line from Tallipoosa to Wardell, Mo., 10.59 miles.

WESTERN MARYLAND.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to nominally issue $3,365,000 of first and refunding mortgage 5½ per cent bonds, to be held in its treasury.

WICHITA FALLS & SOUTHERN.—*Trackage Rights.*—The Interstate Commerce Commission has authorized this company to operate under trackage rights over the Wichita Falls & Oklahoma, the Wichita Falls & Oklahoma of Oklahoma, the Wichita Valley and the Fort Worth & Denver City between Wichita Falls, Tex., and Waurika, Okla., 35 miles.

Average Prices of Stocks and of Bonds

	July 30	Last week	Last year
Average price of 20 representative railway stocks.	151.68	156.66	118.79
Average price of 20 representative railway bonds..	90.30	90.23	92.50

Dividends Declared

New York, Chicago & St. Louis.—Common, $1.50, quarterly; Preferred, $1.50, quarterly, both payable October 1 to holders of record August 15.

Railway Officers

Executive

A. E. Warren, general manager of the Central region of the Canadian National, with headquarters at Toronto, Ont., has been elected vice-president in charge of the Western region, with headquarters at Winnipeg, Man. **T. A. Hiam,** has been appointed assistant to the president, with headquarters at Vancouver, B. C., both newly created positions.

W. A. Weed has been elected president of the Indiana Northern, with headquarters at South Bend, Ind., succeeding **J. D. Oliver.** Other officers elected at a recent meeting of the board of directors were **T. A. Freeman,** secretary and treasurer; **R. C. Rolfing,** vice-president and traffic manager; **H. F. Shider,** vice-president, and **L. G. Couter,** assistant secretary. All officers will have headquarters at South Bend.

Warren E. Fuller, who has been promoted to assistant to the executive vice-president of the Chicago, Burlington & Quincy, with headquarters at Chicago, has been in railway service for nearly 38 years. He was born at Red Oak, Iowa, on September 14, 1874, and obtained his first railroad experience as a pumper on the Burlington from September, 1891, to January, 1892. For the following 20 years Mr. Fuller served successively on the Burlington as a telegraph operator, an agent, a dispatcher in charge of work train service and as car distributor and chief clerk to the chief dispatcher, assistant chief dispatcher and chief dispatcher of the

Warren E. Fuller

Galesburg division. In October, 1912, he was promoted to assistant superintendent of the Galesburg division at Galesburg, Ill., where he remained until June, 1916, when he was transferred to the LaCrosse division at St. Paul, Minn. For a short time in 1917 he served as inspector of transportation at Chicago and in October of that year he was promoted to superintendent of the Galesburg division, with headquarters at Galesburg, where he remained until his recent promotion to assistant to the executive vice-president.

F. L. Annable, who has been elected president of the San Diego & Arizona, with headquarters at San Diego, Cal., has been in railway service for 36 years. He gained his first railway experience in 1893 on the Coast lines of the Atchison, Topeka and Santa Fe at San Bernardino, Cal. Later he was transferred to Los Angeles, Cal., and to Winslow, Ariz., then entering the service of the Los Angeles & Salt Lake in 1904 as chief clerk to the superintendent at Los Angeles. During 1910 and 1911 he was general superintendent of the Arizona & Swansea at Swansea, Ariz., and at the end of that period he became assistant superintendent of the Pacific Electric at Los Angeles. In 1912 Mr. Annable was promoted to division superintendent at

F. L. Annable

Pomona, Cal., in the following year he was further promoted to general superintendent, with headquarters at Los Angeles. His election as president of the San Diego & Arizona became effective on July 3.

Andrew L. Horst, who has been appointed executive vice-president of the Cambria & Indiana, with headquarters at Philadelphia, Pa., was born at Lebanon, Pa., on March 9, 1878. He was educated at Harvard College and the School of Political Science, Columbia University, and entered railroad service with the Chicago, Burlington & Quincy. From February, 1903, to February, 1906, Mr. Horst was employed in the general manager's office of that road. On the latter date he entered the service of the Lake Shore & Michigan Southern (now part of New York Central), the Cleveland, Cincinnati, Chicago & St. Louis and the Michigan Central as assistant chief clerk in the office of the operating vice-president of those companies, with headquarters at Chicago. He became statistician to the senior vice-president of the New York Central Lines at New York, in February, 1907, and two years later he was promoted to statistician to the president of the same road. From 1914 to 1925, Mr. Horst was engaged in valuation work as head of the Division of Original Cost under the General Valuation Counsel of the New York Central Lines, and from the later date until 1928, he served in a

Andrew L. Horst

consulting capacity to the Valuation Counsel of the same road. He was appointed assistant to the president of the Cambria & Indiana in February, 1925, having general supervision over all departments of that company. In March, 1925, he was also appointed general freight and passenger agent of that company, and in January, 1926, he was also elected assistant treasurer, serving in that capacity until June 19, 1929, when he was elected executive vice-president. Mr. Horst is also president of the Cambria Improvement Company, which is a subsidiary of the Cambria & Indiana. Since December, 1927, he has served as a member of the executive board of the American Short Line Railroad Association.

Operating

N. L. Patterson, chief clerk to the superintendent of dining car service, of the Illinois Central, has been promoted to superintendent of dining car service, with headquarters as before at Chicago.

J. W. Wardlaw, general manager of the Central Vermont, has resigned from that position to enter the service of the Canadian National, which recently purchased the Central Vermont Railway. The position of general manager for the Central Vermont has been abolished and all those heretofore reporting to the general manager will report directly to the receivers.

A. A. Tisdale, assistant to the general manager of the Western region of the Canadian National, has been promoted to general manager of that region, with headquarters as before at Winnipeg, Man., succeeding **W. A. Kingsland,** who has been transferred to the Central region, with headquarters at Toronto, Ont. Mr. Kingsland succeeds

A. E. Warren, who has been elected vice-president of the Western region. **J. R. Cameron,** assistant general manager of the Western region, with headquarters at Vancouver, B. C., retired from active duty on August 1 and the position of assistant general manager at that point has been abolished. **Charles Forrester,** superintendent at London, Ont., has been promoted to general superintendent of the Saskatchewan district, with headquarters at Saskatoon, Sask., replacing **B. T. Chappell,** who has been transferred to the British Columbia district, with headquarters at Vancouver.

Traffic

L. C. Roy, formerly of the Quebec Department of Agriculture, has been appointed special agricultural agent of the Canadian National for the Province of Quebec, with headquarters at Montreal.

J. J. Lane, general traffic manager of the Kansas City, Mexico & Orient, with headquarters at Wichita, Kan., has been appointed assistant general freight and passenger agent of the Atchison, Topeka & Santa Fe, with headquarters at Amarillo, Tex. **A. W. Kendall,** general freight agent of the Orient at Wichita, has been appointed assistant general freight agent of the Santa Fe, with headquarters at Topeka, Kan. **H. H. Nye,** chief clerk in the general freight office of the Santa Fe at Amarillo, has been promoted to assistant general freight agent, with headquarters at the same point. These changes are incident to the acquisition of the Orient by the Santa Fe.

William Pedrick, Jr., who has been appointed assistant to the general traffic manager of the Pennsylvania, with headquarters at New York, was born on October 26, 1870, at Rancocas, Burlington county, N. J. He received his education in the local public schools, at Mount Holly Academy and Temple College, Philadelphia, Pa., entering railway service in 1886, as telegraph operator on the Pennsylvania. He later served as freight and ticket agent and train dispatcher's operator. In February, 1893, Mr. Pedrick was promoted to the passenger traffic department at Atlantic City, where he represented the railroad for ten years. While located there he was instrumental in building up the through train service between that seashore resort and New York City. He was advanced to city passenger agent at Washington, D. C., in 1903 and in May, 1905, he was transferred to Philadelphia as acting district passenger agent. A year later he became district passenger agent at that point. He was sent to New York City in 1912 as assistant district passenger agent, and the following year he became division passenger agent of the combined Baltimore-Washington district, which included the territory south of Washington and east of the Mississippi river. Mr. Pedrick returned to New York City as division passenger agent in 1917, with jurisdiction over all matters pertaining to passenger traffic in Greater New York, Eastern New York State, Northern New Jersey, Connecticut, Western Massachusetts and the City of Montreal. In November, 1923, Mr. Pedrick was appointed general eastern passenger agent, with headquarters at New York, and in June, 1926, he became general passenger agent, with the same headquarters, which position he held until November, 1928, when he was appointed passenger traffic manager, the position he held at the time of his recent promotion to assistant to the general traffic manager. Mr. Pedrick was responsible for the introduction of the passenger soliciting system and also for the introduction and perfection of the comprehensive telephone and telegraph system for the distribution of Pullman space in New York City.

Purchases and Stores

R. J. Lannoy has been appointed commissary storekeeper of the Illinois Central at Memphis, Tenn.

Montgomery Smith, assistant general purchasing agent of the Pennsylvania, with headquarters at Philadelphia, has retired from active duty under the company's pension regulations. Mr. Smith entered the service of the Pennsylvania as clerk in the office of the auditor of passenger receipts in July, 1879. Later in the same year he was transferred to the purchasing agent's office, becoming chief accountant in February, 1896. He was appointed assistant to the purchasing agent in November, 1902, and three years later he became assistant purchasing agent. At the termination of Federal control in March, 1920, Mr. Smith was appointed purchasing agent of the Eastern region and when the purchasing department was reorganized in January, 1924, he was given jurisdiction over the entire system. He held the position of assistant general purchasing agent since May, 1928.

Mechanical

P. M. Sullivan, traveling engineer of the Duluth, Missabe & Northern, has been promoted to master mechanic, with headquarters as before at Proctor, Minn., succeeding **W. J. Greene,** deceased.

T. J. Clark, general master mechanic of the Great Northern, Lines West with headquarters at Spokane, Wash., has been promoted to superintendent of motive power of those lines, succeeding **J. J. Dowling,** who has been appointed master mechanic of the Cascade division, with headquarters at Seattle, Wash. Mr. Dowling succeeds **E. English,** master mechanic of the Cascade division, who has been promoted to general master mechanic, with headquarters at Great Falls, Mont. **I. G. Pool** has been appointed assistant master mechanic of the Montana division, with headquarters at Havre, Mont.

Engineering, Maintenance of Way and Signaling

William M. Farrell, roadmaster on the Oregon Short Line at Nampa, Idaho, has been promoted to general roadmaster of the Idaho division, with headquarters at Pocatello, Idaho. **Frank Ivers, Jr.,** roadmaster at Pocatello, has been promoted to general roadmaster of the Utah division, with headquarters at the same point. Both are newly created positions.

Obituary

S. F. Myron, superintendent of dining car service of the Illinois Central, with headquarters at Chicago, died in that city on June 24.

A. N. Lyon, assistant to the general superintendent of the Ohio Central lines of the New York Central, with headquarters at Charleston, W. Va., died at his home in that city on July 29, following a stroke of paralysis.

Ralph E. Miller, bridge engineer of the St. Louis-San Francisco, with headquarters at St. Louis, Mo., died at the Frisco Employees hospital in that city on July 23 at the age of 51 years. Mr. Miller graduated from Washington and Jefferson University in 1899 and in the same year entered railway service as a rodman on the Pennsylvania. From 1900 to 1907 he served successively with the Riter-Conley Manufacturing Company at Pittsburgh, Pa., and with the American Bridge Company. He was then appointed assistant bridge engineer of the Frisco, his promotion to bridge engineer occurring in 1911.

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C. B. & Q. Local at Cicero, Ill.